Device for Plant Monitoring

SUNNY WEBBOX

User Manual

SWebBox-BEN111033 | 98-0002233 | Version 3.3

EN

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1 Information on this Manual

This manual describes how to assemble, install, commission and operate the Sunny WebBox. Keep the manual in a convenient place for future reference.

This manual does not contain any detailed information about the connected devices. Detailed information about the connected devices is provided in the manuals for the devices.

1.1 Validity

This manual is valid for the Sunny WebBox with hardware version E1 or higher and firmware version 1.52 or higher.

1.2 Additional Information

You will find further information on the Sunny WebBox in the download area of www.SMA.de/en. The Downloads section contains, among other things, the following:

- Certificates and approvals for the Sunny WebBox.
- Information on setting up a local FTP server for automatic reception of plant data via the FTP push function of the Sunny WebBox (see the Technical Information "Setting up the local FTP server").
- Information on data transmission for the Sunny WebBox (see the Technical Information "GSM – Backgrounds regarding data transmission in GSM and UMTS mobile networks for Sunny WebBox / Sunny Boy Control").
- Information on the Remote Procedure Call Protocol of the Sunny WebBox.
- Information on the Modbus Protocol of the Sunny WebBox.

1.3 Symbols Used

The following types of safety precautions and general information appear in this document:

DANGER!

"DANGER!" indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING!

"WARNING!" indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION!

"CAUTION!" indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE!

"NOTICE!" indicates a situation that can result in property damage if not avoided.

Information

Information provides tips that are valuable for the optimal installation and operation of your product.

1.4 Nomenclature

In this manual, the term "photovoltaic plant" will be abbreviated to "PV plant".

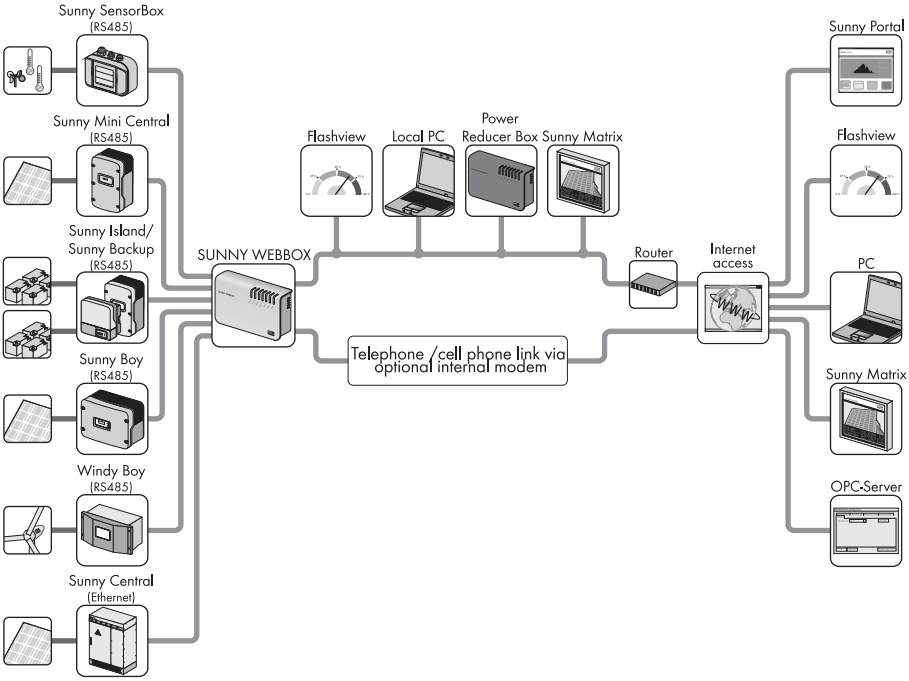
Formatting	Meaning
[Save]	Buttons are displayed in square brackets [ ].
"Menu1"	Menu items are displayed in quotation marks.
"Menu1 > Menu2"	Menu paths are displayed in quotation marks. The angle bracket > separates individual menus.
Example:	Examples are represented in italics.

2 Sunny WebBox

As the central communication interface, the Sunny WebBox connects the PV plant and its operator. The Sunny WebBox collects and documents all data of the connected devices, thus permitting interruption-free monitoring of the PV plant. The operator can access all the data stored in the Sunny WebBox via an Internet connection or a GSM modem.

The Flashview presentation software and the Sunny Portal website can be used to edit data or graphically display stored data. Both presentation programs are freely available on the www.SMA.de/en or the www.SunnyPortal.com websites.

This means that operators can see the yields from their plant both in the local network and via the Internet at any time using Flashview and the Sunny Portal. Data can also be viewed with the large Sunny Matrix display, which is suitable for both indoor and outdoor installation.



The Sunny WebBox is also a powerful tool for operators when configuring plants or performing remote diagnostics via computer. It allows continuous monitoring of the PV plant and early detection of disturbances. Thus, the Sunny WebBox helps optimize PV plant yields.

Operators can expand large-scale PV plants, which must contribute to the utility operator's feed-in management, accordingly using the Sunny WebBox. If the Power Reducer Box is connected, the Sunny WebBox will record the requirements of the utility operator and forward them to the inverter. The Sunny WebBox informs the operator of the requirements of the utility operator.

The Sunny SensorBox allows the operator to expand their plant additionally via the Sunny WebBox. The Sunny SensorBox records the environmental data relevant to performance monitoring at the PV plant. For this purpose, the Sunny SensorBox has an integrated irradiation sensor as well as an external module temperature sensor. The operator can also connect an optional ambient temperature sensor and a wind sensor to the Sunny SensorBox. More information on PV plant monitoring and SMA Solar Technology AG products is available at www.SMA.de/en.

3 Safety

3.1 Appropriate Usage

The Sunny WebBox is a data logger, that records, logs and makes available the data of a PV plant. The Sunny WebBox can receive the requirements of the utility operator via the Power Reducer Box and forward them to the inverters in the PV plant. The Sunny WebBox is suitable for monitoring PV plants of any size.

The data collected by the Sunny WebBox may deviate from the data provided by the electricity meter. The Sunny WebBox data must not be used for billing purposes.

3.1.1 Target Group

The Sunny WebBox is intended for private and industrial use. When you log in to the Sunny WebBox there are 2 user groups at your disposal, "Installer" and "User". The "Installer" user group comprises only qualified personnel who are authorized to make changes to network parameters for the connected devices. Only the installer may carry out the Sunny WebBox commissioning.

3.1.2 Certified Countries

The Sunny WebBox is certified for the following countries:

Australia, Belgium, Germany, France, Greece, Great Britain, Italy, Korea, The Netherlands, Austria, Portugal, Switzerland, Spain, the Czech Republic, the United States of America

3.2 Safety Instructions

Follow all operating and safety instructions in this manual. Failure to follow these instructions could result in damage to the device and cause personal injury.

General safety instructions, in order to avoid physical injury.

- Never open the plug-in power supply.
- Install the cabling in such a way that no one can stand on or trip over it.
- The Sunny WebBox is only to be operated using the supplied plug-in power supply and in the voltage range intended for this.

General information in order to avoid damage to the device.

- By touching electronic components you can cause damage to or destroy the device through electrostatic discharge (ESD). Do not touch component connections and plug contacts unnecessarily. Ground yourself before working on the device.
- With the help of the Sunny WebBox you can change the safety-relevant parameters of SMA inverters (e.g., SMA Grid Guard parameters). Incorrectly set parameters can damage or destroy the inverter. Do not alter these safety-relevant parameters without prior consultation with your electric utility company operating the grid into which your plant feeds.

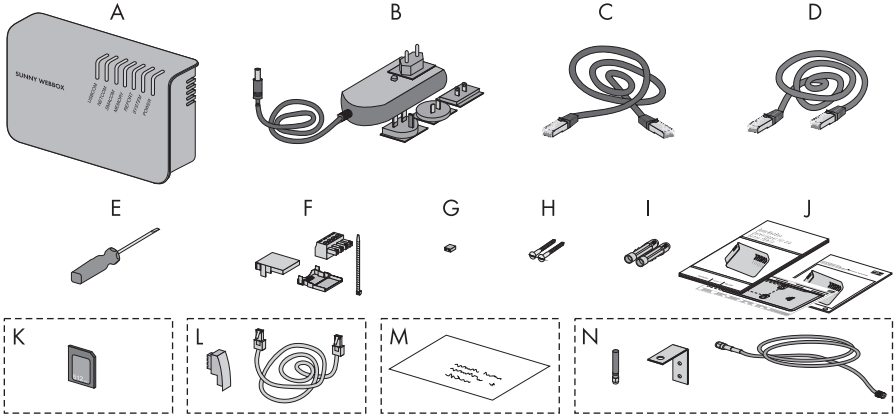
Data Security

- The Sunny WebBox can be connected to the Internet. However, connecting to the Internet entails a security risk. SMA Solar Technology AG recommends that you change the login password after the initial installation in order to prevent unauthorized access by third parties. Select a number-letter combination with at least 8 characters for your password (see section 10.5.1 "Strength of Passwords" (page 66)).

4 Unpacking

4.1 Scope of Delivery

Check the scope of supply for completeness and for any external damage. Contact your dealer if the delivery is incomplete or damaged.



Item	Quantity	Description
A	1	Sunny WebBox
B	1	Plug-in power supply with socket adapter (adapter type depends on the country specified in the order)
C	1	Red network cable (patch cable)
D	1	Blue network cable (crossover cable)
E	1	Screwdriver
F	1	Plug for SMACOM (1 plug, 1 connector shell, 1 cable tie)
G	10	Jumper as replacement
H	2	Screws
I	2	Screw anchors
J	1	Operating manual with drilling template and Quick Start
K	1	SD card – inserted into the SD card slot on the Sunny WebBox (only with the ordering option Sunny WebBox with SD card).
L	1	Modem cable with RJ11 plug and RJ11 to TAE adapter (only with the ordering option Sunny WebBox with analog modem).

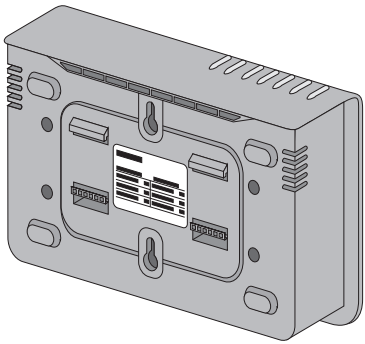
Item	Quantity	Description
M	1	Envelope with T-Mobile contract and an information sheet including PIN and PUK. The SIM card is already installed in the Sunny WebBox. (Only with the ordering option Sunny WebBox with GSM modem including SIM card).
N	1	GSM antenna with bracket and 3 meter antenna cable (only with the ordering option Sunny WebBox with GSM modem).

* T-Mobile card contract only available for Germany.

4.2 Identifying the Sunny WebBox

Type plate

You can identify the Sunny WebBox using the type plate. The type plate can be found on the back of the enclosure.

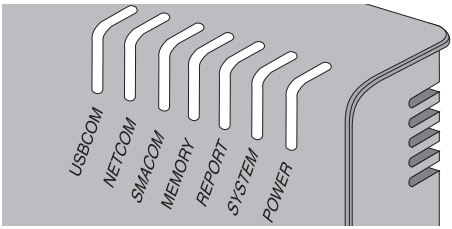


Firmware Version

The firmware version can be found in the user interface of the Sunny WebBox. The current firmware version is displayed on the bottom right corner of every page.

5 Device Overview

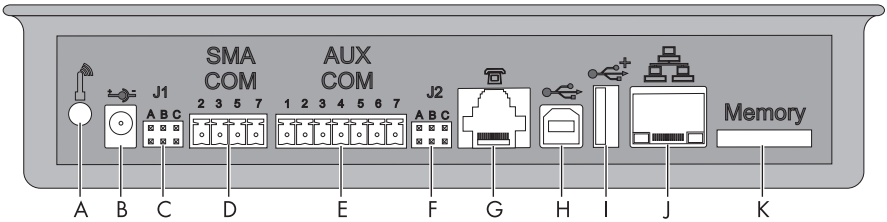
5.1 Overview of the Sunny WebBox LEDs



LED name	Status	Meaning
USBCOM	flashes green	no function
	glows red	no function
	off	no function
NETCOM	flashes green	The Sunny WebBox will transmit data to the Sunny Portal.
	glows green	The most recent data transmission to Sunny Portal/FTP push has been successful.
	glows red	The most recent data transmission to Sunny Portal/FTP push failed. The Sunny WebBox will attempt to transmit the data again according to its settings. The Sunny WebBox internal memory can retain the accumulated data for approximately 2 days.
	off	Data transmission is deactivated.
SMACOM	flashes green	The Sunny WebBox is communicating with a device.
	glows green	System communication has occurred in the last 5 minutes.
	glows red	More than one device logged into the communication bus is set as a master.
	off	No communication has occurred on the communication bus in over 5 minutes.
MEMORY	glows green	SD card is located in the SD card slot. The Sunny WebBox can write data to the SD card.
	flashes orange	Sunny WebBox is writing data to the SD card.
	glows orange	The inserted SD card is writable (available space < 10 %).
	glows red	SD card is full
	off	No SD card in the device.
REPORT	glows green	no function

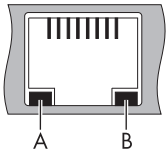
LED name	Status	Meaning
SYSTEM	flashes red	Sunny WebBox is starting.
	glows red	An error has occurred in the Sunny WebBox.
	glows green	Sunny WebBox is operational.
POWER	glows green	Sunny WebBox has power.
	off	Sunny WebBox does not have power.

5.2 Overview of the Connection Area



Item	Description
A	Connection for GSM antenna cable (optional)
B	Connection for the plug-in power supply
C	Jumper socket J1
D	SMACOM
E	AUXCOM (no function)
F	Jumper socket J2
G	Modem connection
H	USB connection client (no function)
I	USB connection host (no function)
J	Network connection
K	SD card slot

5.3 Overview of the LEDs on the Network Connection



Item	LED	Status	Meaning
A	Speed	On	100 MB connection speed
		Off	10 MB connection speed
B	Link / Activity	On	Connection (link) established
		Flashing	The Sunny WebBox is currently transmitting or receiving data (activity).
		Off	No connection established

6 Commissioning

6.1 Information on Starting up the Device

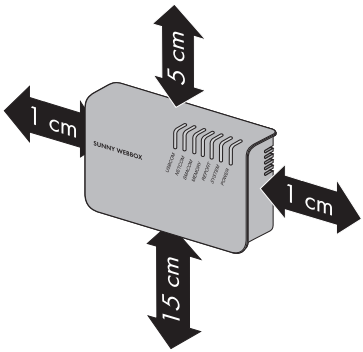
Starting up the Sunny WebBox entails the following steps:

- Connect the Sunny WebBox directly to the computer (see page 21).
- Configure network settings on the computer (see page 22).
- Configure Sunny WebBox for the local network (see page 27) **and/or** configure Sunny WebBox for modem operation (see page 29).
- Connect the Sunny WebBox to the inverter (see page 36).
- Set the PV plant communication mode (see page 60) and detect the PV plant devices (see page 48).

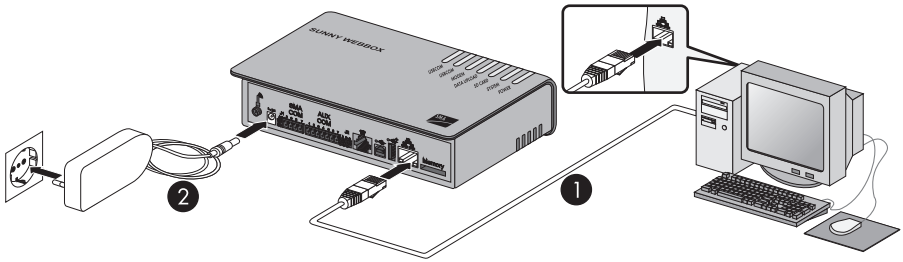
6.2 Mounting / Installation Location Requirements

Please note the following information on the mounting / installation location of the Sunny WebBox:

- The Sunny WebBox is suited only for mounting indoors.
- The ambient temperature must be between -20 °C and +65 °C.
- The maximum cable length of the entire RS485 communication bus is 1,200 m.
- The maximum permitted network cable length is 100 m per segment.
- The maximum permitted telephone cable length is 200 m.
- The Sunny WebBox requires an outlet with a grid voltage of 100 V ... 200 V.
- Protect the Sunny WebBox from dust, wet conditions, corrosive substances and vapors.
- Observe the minimum clearances to walls, other devices or objects as shown in the diagram in order to guarantee sufficient heat dissipation.
- Do not cover the Sunny WebBox.
- The distance from the Sunny WebBox to the inverters may not be greater than the maximum permitted distance of the selected communication type. Please note the specifications in the respective sections.
- During installation, make sure there is optimal reception for the transmission paths. Please note the specifications in the respective sections.



6.3 Connecting the Sunny WebBox Directly to the Computer



1. Connect the Sunny WebBox with the **blue** network cable (crossover cable) to the computer (see ①).

   The connection of the computer is normally indicated by the same symbol as the Sunny WebBox network connection. If necessary, refer to the computer manual.

Recommendation on network cabling

If the supplied network cable is too short, please observe the following network cable requirements:

- You will need a crossover cable.
- Use a cable of type Cat5 or higher.
- Use a shielded cable.
- For a total length of no more than 100 m, observe the guidelines for structured cabling as described in EIA/TIA-568, ISO/IEC 11801 and/or EN 50173 (cable for fixed layout at least AWG24).
- For a cable with no more than 50 m total length, a AWG26/7 cable may be used.

2. Connect the plug-in power supply to the Sunny WebBox and plug it into the socket (see ②).

☑ As soon as the "SYSTEM" and "POWER" LEDs glow green, the Sunny WebBox has started up and is ready for operation. The start-up procedure can take up to 90 seconds.

– If the "SYSTEM" or "POWER" LEDs do not glow green, please refer to section 14 "Troubleshooting" (page 80).

6.4 Configuring Network Settings on the Computer

6.4.1 Information on Network Settings on the Computer

Before you can use the Sunny WebBox for the first time, you need to configure your computer based on the network settings of the Sunny WebBox. The settings are described for the following operating systems:

- Windows Vista/Windows 7
- Windows XP, Windows 2000

If you use a different operating system, refer to the manual of your operating system to find out how to set the computer IP address to 192.168.0.100 and the subnet mask to 255.255.255.0.

User rights in the operating system

You will need the appropriate user rights to change the computer's network settings. Without the necessary user rights, you will not be able to start up the Sunny WebBox. If you have any questions, contact your network administrator.

6.4.2 Windows 7, Windows Vista

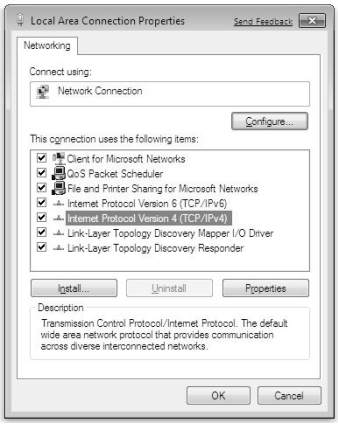
1. Start the computer.
2. In Windows select "Start"
3. Enter "ncpa.cpl" in the search field and press Enter.
   ☑ The "Network Connections" window opens.
4. Double click on the LAN connection via which the Sunny WebBox is connected.
   – If Windows displays several LAN connections, there are probably several network connections installed in the computer. Ensure that you select the correct network connection, with which the computer is connected to the Sunny WebBox. If necessary, refer to the computer manual.
   – In the event that no LAN connection is displayed, please refer to section 14 "Troubleshooting" (page 80).
   ☑ The "Local Area Connection Status" window opens.
5. Click [Properties] from the "General" tab.

☑ The "Local Area Connection Properties" window appears.

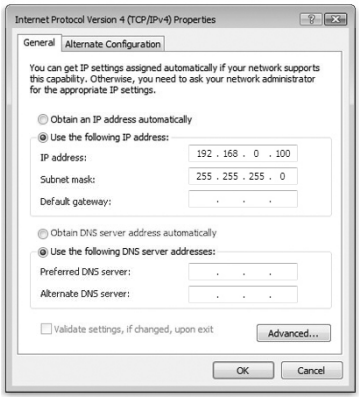
6. Select "Internet Protocol Version 4 (TCP/IPv4)" and then click [Properties].

   ☑ The "Internet Protocol Version 4 (TCP/IPv4) Properties" window opens.

7. Note the current network settings in the "Internet Protocol Version 4 (TCP/IPv4) Properties" window. This enables you to reset the computer network settings after configuration of the Sunny WebBox.



8. Enter the following static network settings for the computer in the "Internet Protocol Version 4 (TCP/IPv4) Properties" window.
   - Activate the field "Use the following IP address".
   - Enter 192.168.0.100 in the "IP address:" field.
   - Enter 255.255.255.0 in the "Subnet mask:" field.
   - Delete any entries in the "Default gateway", "Preferred DNS server", and "Alternate DNS server" boxes.
9. Select [OK].
10. In the "Local Area Connection Properties" window, select [OK].


Internet Protocol Version 4 (TCP/IPv4) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 168 . 0 . 100
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Validate settings, if changed, upon exit
Advanced...
OK
Cancel

☑ The computer is set to the network settings of the Sunny WebBox.

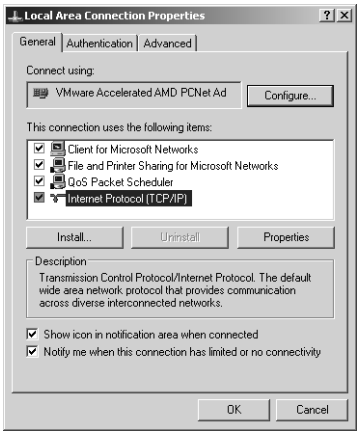
6.4.3 Windows XP, Windows 2000

1. Start the computer.
2. In Windows, select "Start > Settings > Network Connections".
3. Double click on the LAN connection via which the Sunny WebBox is connected.
   - If Windows displays several LAN connections, there are probably several network connections installed in the computer. Ensure that you select the correct network connection, with which the computer is connected to the Sunny WebBox. If necessary, refer to the computer manual.
   - In the event that no LAN connection is displayed, please refer to section 14 "Troubleshooting" (page 80).

   ☑ The "Local Area Connection Status" window opens.
4. Select [Properties] from the "General" tab.

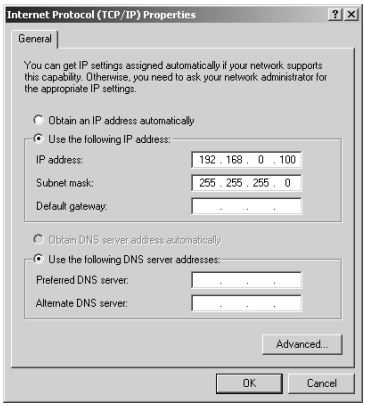
   ☑ The "Local Area Connection Properties" window appears.
5. Select "Internet protocol (TCP/IP)" and click [Properties].

   ☑ The "Internet Protocol (TCP/IP) Properties" window appears.
6. Note the current network settings in the "Internet Protocol (TCP/IP) Properties" window. This enables you to reset the computer network settings after configuration of the Sunny WebBox.



7. Enter the following static network settings in the "Internet Protocol (TCP/IP) Properties" window:
   - Activate the field "Use the following IP address".
   - Enter 192.168.0.100 in the "IP address" field.
   - Enter 255.255.255.0 in the "Subnet mask" field.
   - Delete any entries in the "Default gateway", "Preferred DNS server", and "Alternate DNS server" boxes.
8. Select [OK].
9. In the "Local Area Connection Properties" window, select [OK].

☑ The computer is set to the network settings of the Sunny WebBox.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 0 . 100
Subnet mask: 255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

6.5 Logging in to the Sunny WebBox for the First Time

The Sunny WebBox distinguishes between 2 user groups: **user** and **installer**.

The two user groups are distinguished by two different passwords. If the password is the same for both user groups, you will be logged in as the installer.

In order to prevent two users making changes at the same time, only one user can ever be logged on to the Sunny WebBox at a time.

The user groups have the following rights:

User Group	Right
User	This user group allows the user to read all display-relevant information, such as instantaneous values and parameter settings. Settings that affect functionality cannot be modified. The user can choose any plant password for the "User" user group.
Installer	In addition to the rights available to users, this user group may also set or change plant parameters that affect functionality. In addition, the user group may carry out the following tasks: • Resetting the Sunny WebBox to the factory settings. • Safely shutting down the Sunny WebBox. • Changing the user and installer user group passwords. • Changing the parameters of the inverters. • Logging into SMA Grid Guard.
Installer with SMA Grid Guard rights	The installer can change SMA Grid Guard parameters for devices.

Logging into the Sunny WebBox

1. Start Web browser (e.g. Internet Explorer).

Activating JavaScript in the Web browser

The Sunny WebBox user interface needs JavaScript in order to be able to correctly configure and display the functions and content of the Sunny WebBox. Activate JavaScript in your Web browser If necessary, refer to the help section in your Web browser.

2. Enter **http://192.168.0.168** into the address bar and press Enter.
   ☑ The Sunny WebBox login page opens.
   – If the page does not open, please refer to section 14 "Troubleshooting" (page 80).
3. Log in as "Installer". Upon delivery the password for the installer is: "sma."

Security in the local network

Change the user groups standard passwords in order to prevent unauthorized access.

6.6 Configuring Sunny WebBox for the Local Network

6.6.1 Information on Integrating the Sunny WebBox into a Local Network

The next sections describe how to integrate the Sunny WebBox via static network settings into your local network with a router.

In rare cases, further network settings are necessary. Examples of further network settings include integrating the Sunny WebBox via DHCP into your network, or making the Sunny WebBox accessible via the Internet. If this is the case, contact your network administrator and refer to section 10.3 "Ethernet Network" (page 62).

Sunny WebBox Assistant

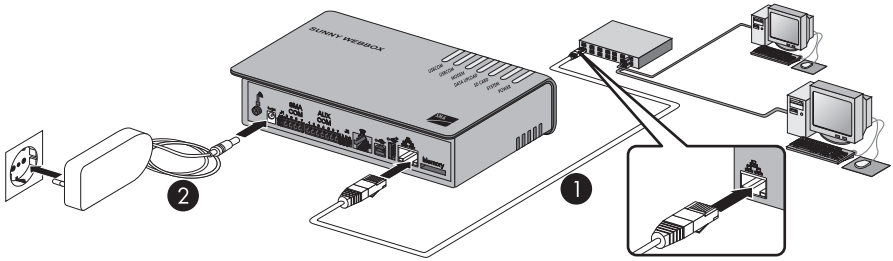
It is recommended to use the Sunny WebBox Assistant for the commissioning of the Sunny WebBox and for the integration into a network. You can download the Sunny WebBox Assistant on the Internet from www.SMA.de/en.

Protecting the Ethernet network from external access

Protect your Ethernet network through suitable security measures such as a firewall or the allocation of secure passwords.

6.6.2 Configuring the Static Network Settings of the Sunny WebBox

1. Select "WebBox > Settings > Network" in the Sunny WebBox user interface.
2. In the "Obtain IP address" field, select the value "Static".
3. In the "IP Address" field enter the static IP address, under which the Sunny WebBox is to be reachable in the local network (see section 15.1 "Allocating an IP Address in a Local Network" (page 85)).
4. Enter the subnet mask of your network in the "Subnet mask" field. Normally, you can find this information in the router manual.
5. Enter the gateway IP address of your network in the "Gateway address" field. Usually, this is the IP address of the router.
6. In the "DNS server Address" field, enter the IP address of the DNS server (Domain Name System Server). Usually, this is the IP address of the router.
7. Select [Save] and [Confirm].
   ☑ The Sunny WebBox saves the network settings and will not longer be accessible from your computer.
8. Remove the plug-in power supply of the Sunny WebBox from the plug socket.
9. Remove the blue network cable (crossover cable).



10. Connect the Sunny WebBox directly to the receiver (e.g. router, switch or hub) of the local network using the **red** network cable (patch cable) (see ①). The connection of the receiver is normally indicated by the same symbol as the Sunny WebBox network connection. If necessary, please refer to the receiver manual.

Recommendation on network cabling

If the supplied network cable is too short, please observe the following network cable requirements:

- Use a cable of type Cat5 or higher.
- Use a shielded cable.
- For a total length of no more than 100 m, observe the guidelines for structured cabling as described in EIA/TIA-568, ISO/IEC 11801 and/or EN 50173 (cable for fixed layout at least AWG24).
- For a cable with no more than 50 m total length, a AWG26/7 patch cable may be used.

11. Connect the plug-in power supply to the Sunny WebBox and plug it into the socket (see ②).

☑ The Sunny WebBox starts. As soon as the "SYSTEM" and "POWER" LEDs glow green, the Sunny WebBox has started up and is ready for operation. The start-up procedure can take up to 90 seconds.

– If the "SYSTEM" or "POWER" LEDs do not glow green, please refer to section 14 "Troubleshooting" (page 80).

Resetting the computer to the network settings.

Reset your computer to its original network settings so that it can be accessed over the local network whenever necessary (see section 22).

☑ The user interface of the Sunny WebBox is now available via the new IP address.

6.7 Configuring the Sunny WebBox for Modem Operation

6.7.1 Information on Configuring the Sunny WebBox with an Analog or GSM Modem

The following sections describe how to connect and configure the Sunny WebBox to the telephone network or GSM network with an analog or GSM modem.

Configuration entails the following steps:

- Connect the modem cable or GSM antenna (see page 29).
- Configure the modem settings of the Sunny WebBox (see page 32).
- Determine the mounting/installation location for the GSM version (see page 33).
- Mount the GSM antenna with the bracket or extension set (see page 33).

6.7.2 Connect Modem Cable or GSM Antenna

Depending on the ordered version of your Sunny WebBox, carry out the steps in the corresponding section:

- For a Sunny WebBox with analog modem, see section "Connecting the Sunny WebBox to the telephone network via modem cable" (page 29).
- For a Sunny WebBox with GSM modem, see section "Connecting the GSM antenna to a Sunny WebBox" (page 31).

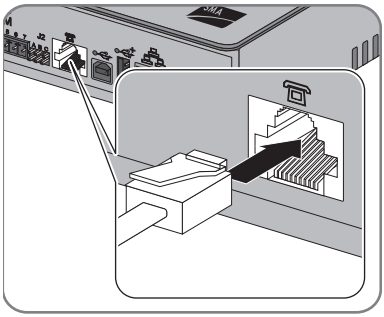
Connecting the Sunny WebBox to the telephone network via modem cable

Recommendations for telephone network cabling

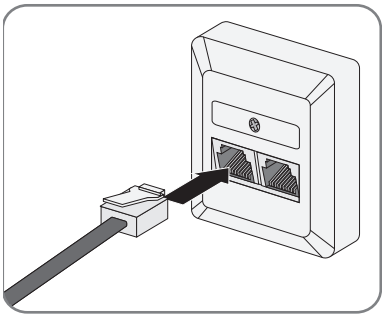
If the provided telephone cable is not long enough, observe the following instructions when purchasing a new one, since the cable length and quality can adversely affect the signal quality.

- Use a standard high-quality cable. The telephone plug on both ends is an RJ11 Western plug.
- The maximum permitted cable length for analog telephones is 200 m.

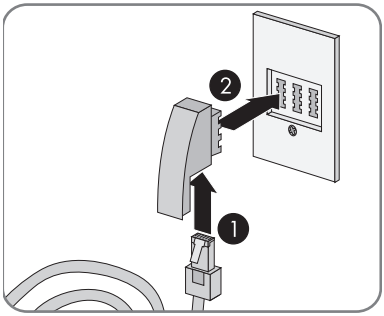
1. Insert one plug of the supplied modem cable into the Sunny WebBox modem connection.
2. Connect the Sunny WebBox to the telephone connection:



   – RJ11 socket: Insert the end of the modem cable into the RJ11 socket.



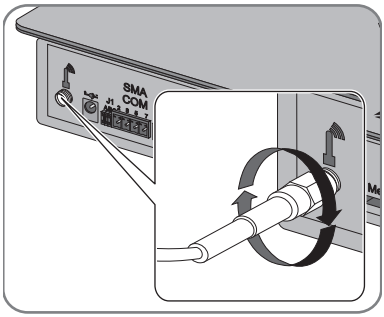
   – TAE- or TAE-N telephone socket: Attach the provided RJ11 - TAE adapter to the modem cable and insert it into the telephone socket.



☑ Check whether the Sunny WebBox is connected to the telephone network. You can now configure the modem settings in the Sunny WebBox.

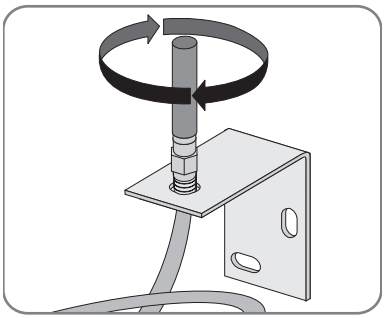
Connecting the GSM antenna to a Sunny WebBox

1. If you have ordered a Sunny WebBox without integrated GSM modem containing an integrated SIM card, then retrofit a SIM card as described in section 15 "Appendix" (page 85).
2. Screw the GSM antenna cable onto the antenna terminal of the Sunny WebBox.



3. Screw the antenna onto the antenna cable.

☑ The GSM antenna is connected. You can now configure the modem settings in the Sunny WebBox and determine the optimal mounting location for the Sunny WebBox with GSM.



6.7.3 Configuring the Modem Settings for the Sunny WebBox

The following section provides information on setting up your analog or GSM modem. You can obtain additional information about the GSM card contract and the selection of the proper GSM tariff in section 15.6 "Sunny WebBox with GSM Modem" (page 89).

1. Select "WebBox > Settings > Modem" on the user interface.
2. In the "Allow Modem access" field select "yes". This allows the establishment of a remote data transmission connection to the Sunny WebBox.
3. Enter the telephone number of your Internet Service Provider (ISP) in the "ISP telephone number" field. In a Sunny WebBox with GSM modem: always enter ***99***1#** for contracts with the German providers T-Mobile, Vodafone and E-Plus. If you have a contract with other service providers, the ISP telephone number may vary. You will find this information in your service provider documentation.
4. Enter the data received from the ISP in the "ISP user name" and "ISP password" fields. Please ensure that in the Sunny WebBox with GSM modem, the fields "ISP user name" and "ISP password" are not left empty, even though many service providers do allocate user names and passwords. Enter an appropriate place holder here. For examples of GSM contracts available within Germany, see page 90.
5. In the Sunny WebBox with GSM modem, you must also enter the data contained in your documents in the "GSM SIM PIN" and "GPRS APN" fields.
6. Test the connection as described in Section 10.4.1 "Testing the Connection" (page 65).
7. Select [Save].

☑ The modem is now configured.

6.7.4 Determining the Mounting / Installation Location for the GSM Version

NOTICE!

Increased electromagnetic radiation through the GSM antenna.

- Note that persons may not remain closer than 20 cm to the antenna for long periods of time.

Proceed as follows to determine the optimal mounting location:

1. Select "WebBox > Settings > Modem" on the user interface.
2. Modem settings of the Sunny WebBox are configured (see section 6.7 "Configuring the Sunny WebBox for Modem Operation" (page 29)).
3. Select [Signal strength].

☑ The signal strength is displayed. A signal strength of at least 30 % is necessary to ensure secure communication with all cell phone network providers.

Improving signal strength

If sufficient reception is not possible in the building, use the optimal GSM antenna extension set for outside installation (see section 16 "Accessories" (page 95)).

4. Identify the ideal mounting location for the GSM antenna.

☑ The ideal mounting location for the GSM antenna has been determined. You can now mount the GSM antenna.

6.7.5 Mounting a GSM Antenna with a Bracket or Extension Set

NOTICE!

Improper mounting can cause damage to the antenna cable.

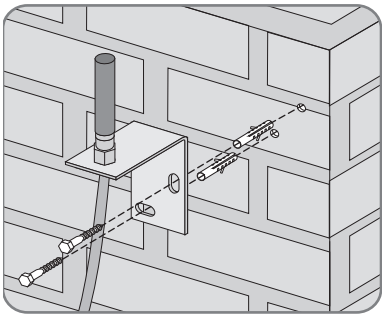
Improper mounting can cause damage if the antenna cable is twisted or kinked.

- When securing the antenna and the antenna cable with the antenna bracket, do not twist or kink the cable.
- Use a suitable mounting tool.

This section shows you how to mount the GSM antenna:

- Mounting the GSM antenna with the supplied bracket (see page 34).
- Mounting a GSM antenna with the GSM antenna extension set (see page 34).

Mounting the GSM antenna with the supplied bracket

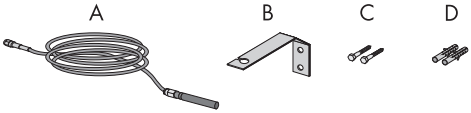


1. Hold the antenna bracket against the wall and mark the holes with a pencil.
2. Drill holes with 6 mm diameter at the marked points and insert the screw anchors.
3. Attach the antenna bracket to the wall with the screws.
4. Connect the antenna cable to the Sunny WebBox.

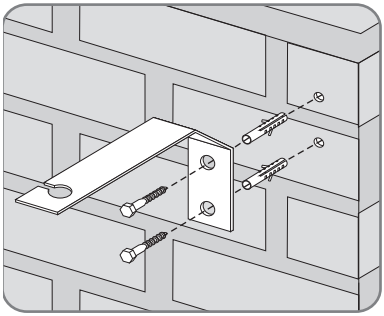
☑ You have now successfully mounted the antenna.

Mounting a GSM Antenna with the GSM Antenna Extension Set

Additional accessories available for the Sunny WebBox.

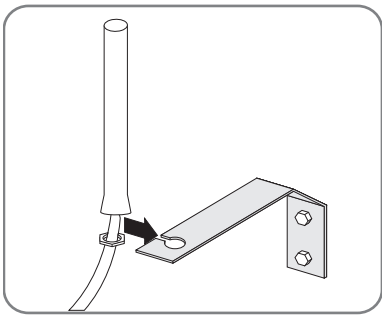


Item	Quantity	Description
A	1	Antenna with 10 m antenna cable (pre-assembled)
B	1	Antenna bracket
C	2	Screws
D	2	Screw anchors



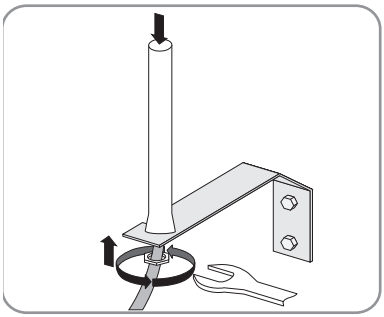
1. Hold the antenna bracket against the wall and mark the holes with a pencil.
2. Drill holes with 8 mm diameter at the marked points and insert screw anchors.
3. Attach the antenna bracket to the wall with the screws.

4. Loosen the counternut from the antenna, and pass the antenna with the cable into the antenna bracket from the side.
5. Insert the antenna into the antenna bracket from above.



6. Hold the antenna to prevent the antenna cable from twisting. Tighten the antenna counternut using a wrench.
7. Connect the antenna cable to the Sunny WebBox.

☑ You have now successfully mounted the antenna.



6.8 Connecting the Sunny WebBox to the Inverter

DANGER!
Risk of lethal electric shock when opening the inverter.

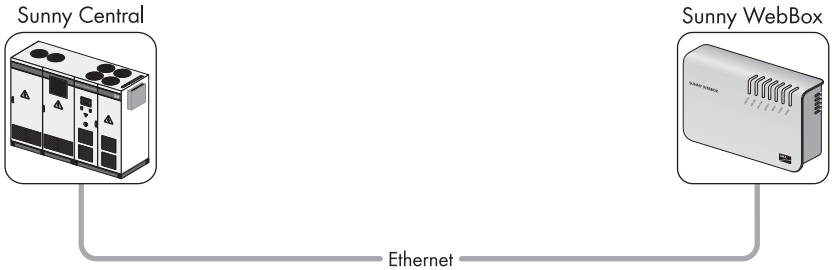
- All work on the inverter may only be carried out by an electrically skilled person.
- Disconnect the inverter on the AC and DC sides as described in the inverter manual.

This section describes the following methods for connecting the Sunny WebBox to inverters:

- Connecting the Sunny WebBox to a Sunny Central via Ethernet (maximum 50 inverters)
- Connecting the Sunny WebBox to an inverter via RS485 (maximum 50 inverters)

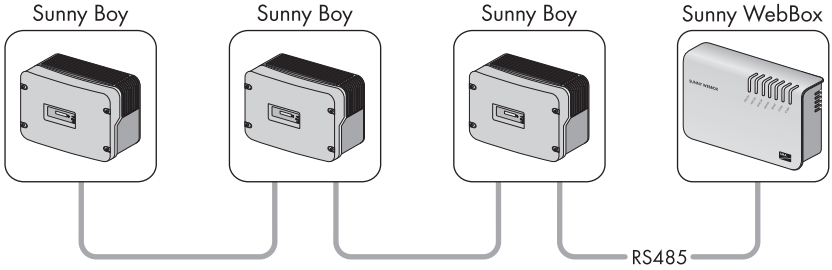
6.8.1 Connecting the Sunny WebBox to a Sunny Central

The Sunny WebBox is connected to the Sunny Central via Ethernet. Configure the Sunny WebBox for the local network and connect the Sunny WebBox directly to the receiver (e.g., router, switch or hub) of the Sunny Central via the red network cable (patch cable).



6.8.2 Connecting the Sunny WebBox to the RS485 Communication Bus

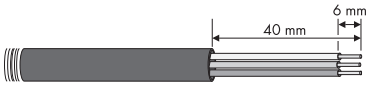
This section describes how to connect the Sunny WebBox to the RS485 communication bus. It will be assumed that the Sunny WebBox is located at the end of the RS485 communication bus.



RS485 cabling and pin assignment in the system

See the RS485 cabling plan poster for the system cabling and pin assignment.

1. Connect cables to the RS485 bus nodes as described in the bus node manual.
2. Remove 40 cm from the cable sleeve of the RS485 communication cable on the side of the Sunny WebBox.



3. Remove shielding until flush with cable sleeve.
4. Strip approx. 6 mm of insulation from the ends of the conductors.

Connect the insulated conductors of the cable to the plug connector correctly

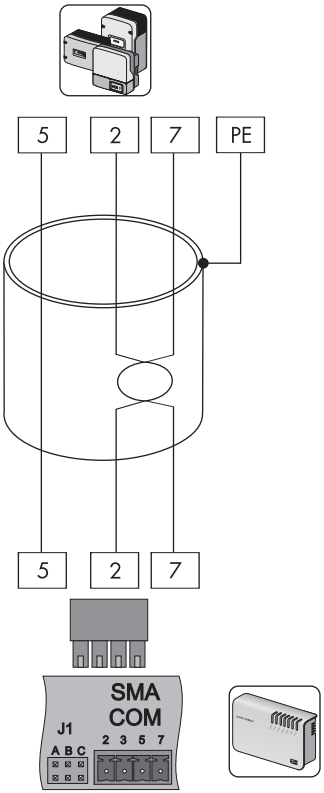
Note the color of the insulated conductors of the communication cable.

2 | D+ _____

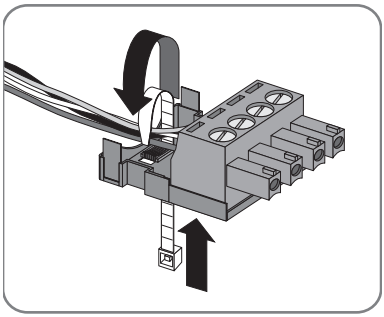
5 | GND _____

7 | D- _____

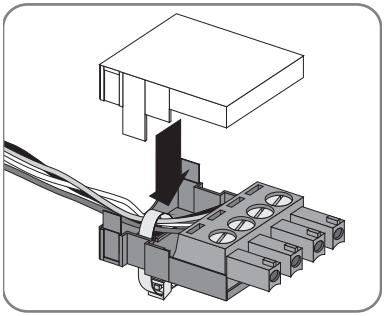
5. Connect the insulated conductors to the plug connector. Observe the configurations of the insulated conductors in the RS485 communication bus.
6. Shorten unused insulated conductors until flush with cable sleeve.



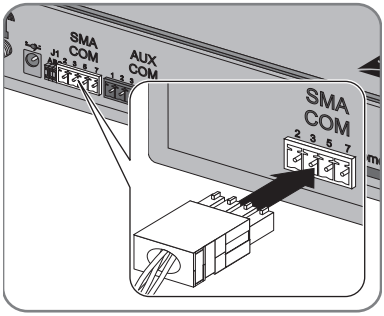
7. Place the plug on the bottom half of the cable enclosure and use the cable tie to fix the cable jacket to the bottom half of the cable enclosure.



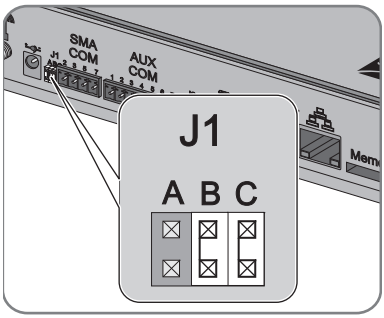
8. Press the upper half of the cable enclosure to the lower half of the cable enclosure and the plug until the terminals snap together.



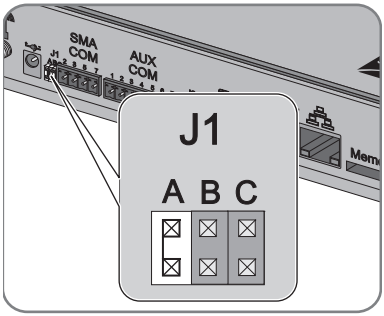
9. Insert the plug connector into the "SMA COM" socket of the Sunny WebBox.



10. Check whether jumpers are connected to "J1B" and "J1C" on the Sunny WebBox "SMA COM" connector. The jumpers are mounted upon delivery. If the jumpers are not mounted, connect them. The jumpers enable signal biasing and ensure an adequate signal quality on the RS485 communication bus.



11. Whether the Sunny WebBox is located at one of the two ends of the RS485 communication bus determines whether or not a jumper must be inserted in "J1A" of the "SMA COM" connection. The jumper is mounted upon delivery.



   - If the Sunny WebBox is located at either end of the RS485 communication bus, a jumper must be inserted in "J1A". If a jumper is not mounted, connect a jumper.
   - If the Sunny WebBox is <u>not</u> located at one of the two ends of the RS485 communication bus, no jumper may be inserted in "J1A". Remove the jumper from "J1A".

☑ The Sunny WebBox is now connected to the RS485 communication bus.

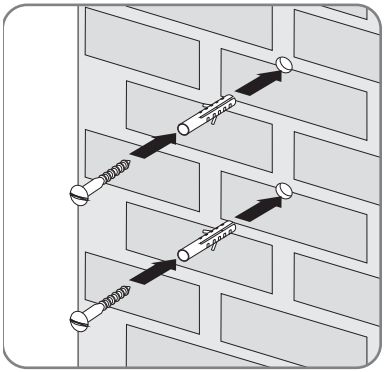
6.9 Mounting the Sunny WebBox (Wall or Top-Hat Rail)

This section describes how to mount the Sunny WebBox in the following ways:

- Mounting the Sunny WebBox onto the wall
- Mounting the Sunny WebBox on the top-hat rail

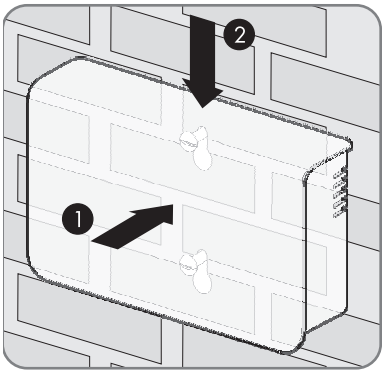
Mounting the Sunny WebBox onto the wall

1. Determine the mounting location taking into consideration the mounting / installation location requirements.
2. Use the supplied drilling template to determine the position of the Sunny WebBox on the wall and to mark the drilling holes with a pen.
3. Drill holes with 6 mm diameter at the marked points and insert screw anchors.
4. Screw in the screws and leave about a 6 mm clearance between the screw head and the wall.



5. Hang the Sunny WebBox onto the screws.

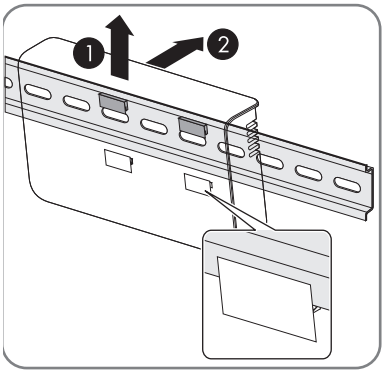
☑ The Sunny WebBox is now mounted on the wall.



Mounting the Sunny WebBox on the top-hat rail

1. Hook the two lower brackets of the Sunny WebBox onto the lower edge of the top-hat rail.
2. Press the Sunny WebBox upwards and snap it into the upper brackets of the Sunny WebBox.

☑ The Sunny WebBox is now mounted on the top-hat rail.



7 Logging in and out of the Sunny WebBox

7.1 Logging into the Sunny WebBox

Activating JavaScript in the Web browser

Activate JavaScript in your Web browser If JavaScript is not enabled, display errors may arise on the user interface.

Unauthorized access to your PV plant is possible

The plant password protects your plant from unauthorized access to the plant devices.

- Change the default password for the user groups (user/installer) after you have logged into a new plant for the first time.

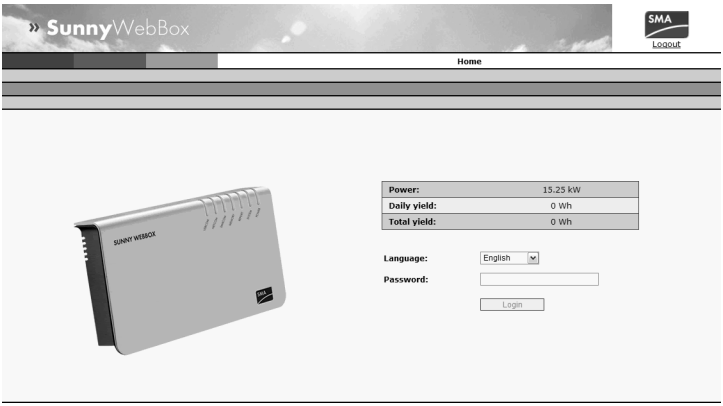
Default settings of the Sunny WebBox

IP address: 192.168.0.168

Subnet mask: 255.255.255.0

Password for installer user group: sma

1. Start Web browser (e.g. Internet Explorer).
2. Type the IP address of the Sunny WebBox into the address bar and press Enter.
   ☑ The Sunny WebBox login page opens.
   – If the page does not open, refer to section 14 "Troubleshooting" (page 80).



3. Select the desired language in the "Language" field.
4. Enter the password in the "Password" field.
5. Select [Login].

☑ The Sunny WebBox start page appears.

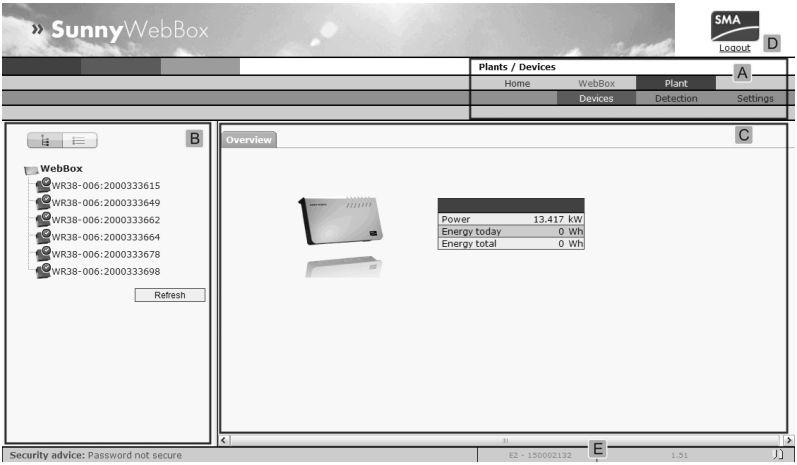
7.2 Logging out of the Sunny WebBox

Always log out from the Sunny WebBox when you finish your work on the Sunny WebBox. To do so, select [Logout]. If you only close the Web browser, you will not be logged out of the Sunny WebBox.

8 Operation

8.1 User Interface

The Sunny WebBox is operated via an integrated user interface. The figure below depicts the user interface start page.



Item	Description
A	Navigation bar
B	Structural view or device view
C	Contents section
D	Logout button
E	Hardware version and firmware version

Once you are logged into the Sunny WebBox, you can access the various pages using the navigation bar (A). For example, this area allows you to configure the network or change the inverter parameters.

Elements such as the logout button and the hardware and firmware version of the Sunny WebBox can be viewed or used on every page. The navigation bar is always available. The submenu changes depending on which main menu item is selected.

On the start page of the Sunny WebBox, there is an overview of the current output, the previous daily yield, and the previous total yield of all the connected inverters.

In general, there are two different areas in the Web interface where settings can be configured:

- Settings that affect the Sunny WebBox and Sunny Portal
- and settings that affect the PV plant.

8.1.1 Explanation of the Status Symbols

This section explains the meanings of the various status symbols in the Web interface of the Sunny WebBox. The symbol of a Sunny Boy appears in each of the following examples. The Sunny WebBox user interface shows other devices in the PV plant with corresponding symbols.

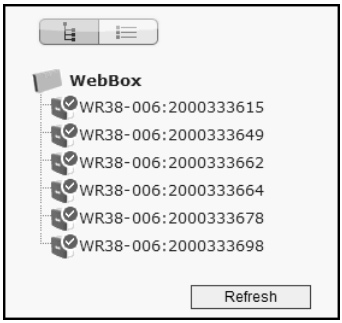
Symbol	Explanation
	This symbol indicates that the inverter is operational and communicates with the Sunny WebBox.
	This symbol indicates that communication has been established with the Sunny WebBox but that the inverter has an error.
	This symbol is displayed in the following cases: • The inverter is unable to communicate with the Sunny WebBox. • A fault has occurred in the communication with the inverter. • It is night time and the inverter is switched off.

8.1.2 Structural View and Device View

In the structural view and the device view, you can access additional data by selecting "Plant > Devices".

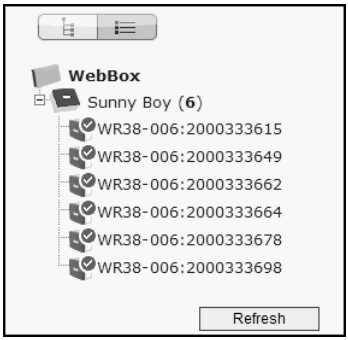
Structural view

In the structural view, the user interface shows the devices in the order in which they are connected to the data bus.



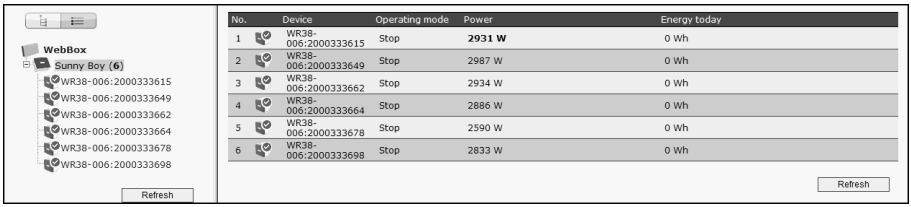
Device View

In the device view, the user interface shows all devices sorted by device type. Device types are, for example, all Sunny Boys. The number shown in parentheses indicates the number of devices of the device type.



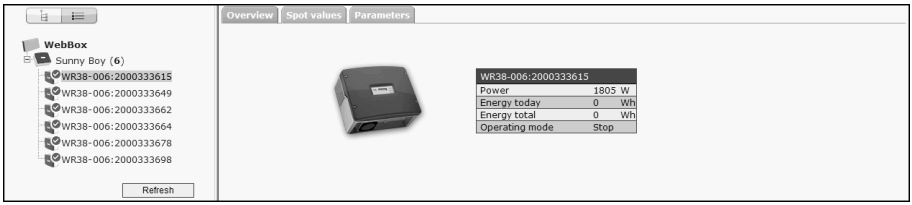
8.1.3 Overview According to Device Type

In the device view, the window on the right provides an overview of all devices in a group. To view all the devices of a specific type, select the device type in the device view.



8.1.4 Overview of a Single Device

To view the data of one specific device, select the device in the device view or the structural view.



The "Overview", "Spot values" and "Parameters" tabs can be used to display and, if necessary, edit the various data on the device.

8.2 Detecting Devices

All devices (i.e., inverters) can be detected at once. If you later wish to add additional devices to the PV plant, you can detect them using the Sunny WebBox.

Before beginning detection, the communication mode of the PV system has to be set (see page 60).

Re-detecting devices after changes to the PV plant

Devices will need to be re-detected if you:

- Exchange devices in your PV plant.
- Remove devices from your PV plant.
- Add devices to your PV plant.

Detection of a PV plant may take several minutes

Depending on the number of devices in your PV plant, the detection process might differ in duration. If the Sunny WebBox does not signal any progress for more than three minutes, cancel the search process. To do so, click the [Cancel] button. Check that all devices are connected properly to your plant and repeat the detection.

1. Select "Plant > Detection" on the user interface.
   ☑ The "Plant detection" page opens.
2. In the "Total number of devices to be detected" field, enter the number of devices that are connected to the Sunny WebBox.
3. Select [Start detection].
   ☑ The Sunny WebBox starts detecting all inverters and displays its progress. Once all devices have been detected, the Sunny WebBox displays "### Device detection finished ###".
4. Select [OK].

☑ The "Plant > Devices" page appears. The devices have been detected.

8.3 Parameterizing Devices

1. On the Sunny WebBox start page, log in as installer.
2. Select "Plant > Devices" on the user interface.
3. Select a device in the device view or structural view.
4. Select the "Parameters" tab.
   ☑ The Sunny WebBox list all the parameters that can be changed on the selected device.

The displayed parameters depend on the selected device

The displayed parameters depend on the device you selected and can vary significantly between the product ranges (e.g. Sunny Boy and Sunny Central).

5. Change the desired parameter via the "Value" field.
6. To adopt this value for all devices of the same type and with the same firmware version, select the "Save for all devices of this device type" option. For Sunny SensorBox devices, the units for ambient temperature, module temperature and wind speed must also coincide.
7. Select [Save].
   ☑ The Sunny WebBox now adjusts the required value on the device(s). Once the value has been changed, the Sunny WebBox displays "### Parameter change finished ###".
8. Select [OK].

☑ The Sunny WebBox displays the page containing the parameter list on the user interface.

To change additional parameters, proceed the same way. Repeat the instructions beginning from step 3 in order to set the parameters for further devices.

8.4 Displaying the Event Report

The event report provides a log of the various events that occur in both the Sunny WebBox and the devices connected to the Sunny WebBox. For example, information on file uploads to Sunny Portal or errors, warnings or other information regarding the connected devices can be stored in the event report by the Sunny WebBox. To display the events of connected devices, the Sunny WebBox accesses the memory of those devices.

It is possible to display the events of connected devices only for SMA inverters of the type Sunny Backup.

The Sunny WebBox (version 1.52 or higher) currently supports displaying the events of connected devices for SMA inverters of the type Sunny Backup.

1. If you have not configured the settings for retrieving data from the device memory, see section 10.8 "Retrieving or Requesting Data from the Device Memory" (page 69).
2. Select "WebBox > Events" on the user interface.

☑ The page containing the event report appears on the user interface. The Sunny WebBox can display the last 500 events in the report.

9 Managing Plant Data

9.1 Information on the Plant Data

The Sunny WebBox stores the data from all detected devices and provides that data in a variety of formats. Various conditions must be met depending on how you want the data to be displayed. The following sections specify the conditions and the settings required to display the data.

9.2 Plant Presentation in Sunny Portal

You can present data from your PV plant in Sunny Portal using the Sunny WebBox. The Sunny Portal monitors the PV plant and displays the yield and power output. In addition, Sunny Portal can send useful reports via e-mail. Depending on your Sunny WebBox version, you can transmit data to the Sunny Portal using a variety of connection types (e.g. analog, GSM or ISDN or DSL router).

If the Sunny WebBox is unable to connect to the Sunny Portal, the Sunny WebBox will store the collected plant data in a ring buffer. The Sunny WebBox transmits the data to Sunny Portal with the next data upload. If the ring buffer is full, the Sunny WebBox will overwrite the oldest data. The time the ring buffer can bridge depends on the device type and number of the detected devices.

Possible Delays in the Visualization

Evaluating the collected data takes time. Please note that it can take several minutes for the Sunny Portal to display the data of your PV plant.

9.2.1 Registering Sunny WebBox in the Sunny Portal

1. Log into the user interface of the Sunny WebBox.
2. Select "WebBox > Settings > Data transmission" in the user interface.
3. Enter the name of your plant in the "Plant name" field. Sunny Portal displays the name of your plant.
4. Select the transmission method in the "Interface" field. The transmission method depends on which Sunny WebBox version you have.
5. Set the upload frequency (see section 10.6 "Setting Data Upload" (page 67)).
6. Select "Yes" in the "Use Sunny Portal" field.

The plant identifier will be entered automatically.

In general, you do not have to change the preset number in the "Plant identifier" field. The Sunny Portal uses the number is a unique identifier for the plant. If you have not yet registered at Sunny Portal, the Sunny WebBox will automatically enter the preset plant identifier in Sunny Portal after the first successful data upload. Sunny Portal sends the login data to the e-mail address you entered in the "Operator e-mail" field. You are now registered at Sunny Portal.

In case you have already registered at Sunny Portal with the same plant (which can be for example the case when exchanging the data logger), you have to adjust the plant identifier in the "Plant identifier" field, see section 9.2.3 "Adjusting the Plant ID for Sunny Portal" (page 52).

7. Enter your e-mail address in the "Operator e-mail" field. Sunny Portal then sends your access data to the e-mail address entered.
8. Make a selection in the "Use Proxyserver" field and, if necessary, enter the IP address and the port of the proxy server in the "Proxyserver address" field.
9. Make a selection in the "Use authentication" field.

"yes"	Authentication is needed for the proxy server. Adjust further settings.
"no"	The proxy server does not require authentication. "User name" and "Password" do not have to be entered. Continue with step 10.

10. Enter the data of your proxy server in the "User name" and "Password" fields.
11. Select [Save].
12. Select "WebBox > Info".
13. Select [Register] in the "Last Sunny Portal registration" field. The Sunny Portal password will be sent to the entered e-mail address.

☑ The Sunny WebBox data transmission to Sunny Portal is configured.

On the "WebBox > Info" page, you can see when the Sunny WebBox last successfully transmitted data.

9.2.2 Activating/Deactivating Data Transmission to Sunny Portal

1. Log in to the user interface of the Sunny WebBox.
2. Select "WebBox > Settings > Data transmission" in the user interface.
3. Make a selection in the "Use Sunny Portal" field.

"yes"	The Sunny WebBox will transmit data to Sunny Portal. Register the Sunny WebBox in Sunny Portal as described in section 9.2.1 "Registering Sunny WebBox in the Sunny Portal" (page 51).
"no"	The Sunny WebBox will not transmit data to Sunny Portal.

4. Select [Save].

☑ This setting activates or deactivates data transmission to Sunny Portal.

9.2.3 Adjusting the Plant ID for Sunny Portal

Sunny Portal identifies your Sunny WebBox via the plant identifier. In the following cases, you must adjust the plant ID in the Sunny WebBox:

- Data has already been sent to Sunny Portal via another communication device.
- The plant ID set for the Sunny WebBox was reset using the Reset button.
- The Sunny WebBox has been replaced with another Sunny WebBox.
- The Sunny WebBox attempts to add a plant to Sunny Portal that is already registered.

Perform the following steps to adjust the plant ID of the Sunny WebBox for Sunny Portal:

1. Log into Sunny Portal (www.SunnyPortal.com).
2. Go to "Configuration > Plant properties" on the Sunny Portal page.
3. Copy the plant ID to the clipboard.
4. Log in to your Sunny WebBox as a user/installer.
5. Select "WebBox > Settings > Data transmission" in the user interface.
6. Delete the content of the "Plant identifier" field.
7. Paste the plant identifier from the clipboard into the "Plant identifier" field.
8. Select [Save].

☑ The plant ID for the Sunny WebBox is adjusted to Sunny Portal.

9.2.4 Deleting the Sunny Portal Buffer

1. Log into your Sunny WebBox as an installer.
2. Select "WebBox > Info" on the user interface.
3. Select [Delete] in the "Sunny Portal Buffer Load" field.

☑ The Sunny Portal buffer is deleted.

9.2.5 Accessing the Sunny WebBox via Sunny Portal

Using Sunny Portal, you can access your Sunny WebBox via the Internet.

No access to the Sunny WebBox via Sunny Portal via an analog or GSM modem

If the Sunny WebBox transmits its data to Sunny Portal via a modem, you cannot access the Sunny WebBox via Sunny Portal.

Every time the Sunny WebBox connects with Sunny Portal, Sunny Portal saves the current address of the Sunny WebBox or your router with which the Internet connection is established. If your router is configured accordingly, you can access your Sunny WebBox via Sunny Portal.

In "Device overview > Device characteristics" in Sunny Portal, you will find the IP addresses with which the Sunny WebBox last established a connection to Sunny Portal. The IP address displayed is updated by the Sunny WebBox each time data is transmitted.

If your network is permanently connected to the Internet, your Internet provider may disconnect the connection at regular intervals. This usually happens every 24 hours. When you establish a new Internet connection, your Internet provider will assign a new IP address to your network. The Sunny WebBox establishes connections to Sunny Portal via this new IP address. The IP address displayed by Sunny WebBox is always up-to-date.

Accessing the Sunny WebBox via Sunny Portal after change of IP address

When your Internet provider assigns a new IP address to your network, Sunny Portal cannot access the Sunny WebBox immediately. Before it can be accessed, the Sunny WebBox must first send its new IP address to the Sunny Portal. The Sunny WebBox transmits the IP address of the network every time data is transmitted. Wait until the next data transmission is performed by the Sunny WebBox.

The router must forward data requests to the Sunny WebBox.

To access the Sunny WebBox via Sunny Portal, your router must be configured to forward all data requests from Sunny Portal to the Sunny WebBox. If you are denied access, check your router settings.

9.3 Integrated FTP Server

The Sunny WebBox is equipped with an integrated FTP server. The FTP server allows you to access CSV files or compressed XML files. In order to use the FTP server, you must first assign the respective read and write access rights for the FTP server on the Sunny WebBox.

9.3.1 Defining Read and Write Access Rights for the FTP Server

1. Select "WebBox > Settings > Security" in the user interface.
2. Make a selection in the "FTP Server" field.

"Read/write"	You have read and write access rights on the integrated FTP server.
"Read only"	You only have read access rights on the integrated FTP server.
"off"	The integrated FTP server is deactivated.

3. Select [Save].

☑ The FTP server is configured. You can access the FTP server via the Web browser, for example.

9.3.2 Accessing FTP Server via the Web Browser

To access the Sunny WebBox from your Web browser (e.g. Internet Explorer), perform the following steps:

1. Start your Web browser.

User name for logging into the Sunny WebBox.

To log into the FTP server of the Sunny WebBox, you can choose either "user" or "installer" as the user name.

2. Specify the IP address of the Sunny WebBox indicating the user name and password according to following example: ftp://[User name]:[Password]@[IP address].
   For example, when logging into the Sunny WebBox with the IP address 192.168.0.168 and the user name "user" and the password "1234", enter :ftp://user:1234@192.168.0.168
3. Press Enter.

☑ The Web browser displays the directory structure of the FTP server of your Sunny WebBox. You can download and display the collected data.

The user name and password remain saved in the Web browser cache.

After you access the FTP server of the Sunny WebBox with a Web browser, the user name and passwords remain saved in the Web browser cache. Clear the browser cache to prevent unauthorized access to the FTP server of the Sunny WebBox.

9.4 FTP Push Function

The Sunny WebBox is equipped with an FTP push function. This function means that the Sunny WebBox can load the collected data of your PV plant (as an xml file) to an FTP server.

Testing the FTP push function

You can also test the FTP push function using an FTP server installed locally on your computer. To learn how to install a local FTP server and use it to test the Sunny WebBox FTP push function with a local FTP server, please read the Technical Information "Setting up the local FTP server". You can find this document in the download area at www.SMA.de/en.

9.4.1 Activating/Deactivating FTP Push Function

1. Select "WebBox > Settings > Data transmission" in the user interface.
   ☑ The "Data transmission" page opens.
2. Make a selection in the "Use FTP-Push service" field.

"yes"	The FTP push service is activated. Adjust further settings.
"no"	The FTP push service is not activated. Select [Cancel].

3. Enter the URL and port of the FTP server in the "FTP server" field.
4. In the "Upload directory" field, specify the desired file on the FTP server in which the data shall be saved.
5. Make a selection in the "Use authentication" field.

"yes"	Authentication is needed for the FTP server. Adjust further settings.
"no"	Authentication is not required. "User name" and "Password" do not have to be entered. Proceed to step 6.

6. Enter the data of your FTP server in the "User name" and "Password" fields.
7. Set the upload frequency (see section 10.6 "Setting Data Upload" (page 67)).
8. Select [Save].
   ☑ The FTP push function is activated/deactivated depending on the setting.

9.4.2 Testing the FTP Push Function

9. Select "WebBox > Settings > Data transmission" in the user interface.
   ☑ The "Data transmission" page opens.
10. Click the [test] button in the "Test FTP connection" field.
    ☑ The Sunny WebBox sends a test file to the FTP server.
11. Check whether the Sunny WebBox transferred the test file successfully to the FTP server.
    - FTP connection test successful: check the content of the test file (see section 9.5 "HTTP Download Via the User Interface" (page 56)) on your FTP server. The content of the test file must match the data of your Sunny WebBox.
    - FTP connection test failed: check the configuration of your FTP server and the Sunny WebBox. If necessary, you must adjust settings of the FTP server and the Sunny WebBox. If you have any questions, ask your network administrator and repeat the connection test.
12. Select [Save].

☑ The FTP push function is set and has been tested.

9.5 HTTP Download Via the User Interface

You can download the data collected by the Sunny WebBox via HTTP download. This function makes it possible to manually download your collected plant data in CSV or XML format to your computer.

1. Select "WebBox > Recording" on the user interface.
2. Make a selection in the "Format" field.
3. Configure the CSV data format, if necessary, as described in section 10.7 "Configuring the CSV Data Format" (page 68)).
4. Select the required month in the "Download" field. The data for the prior 12 months is available for download via the user interface.
5. Select [Download].
   ☑ A window opens.
6. Select [Save].
7. Choose save location.
8. Select [Save].

☑ The data are downloaded. The download can take several minutes, depending on the data volume.

9.6 Storing Recorded Data on an SD Card

In addition to the internal ring buffer, the Sunny WebBox can also store data on an SD card.

SD Card Compatibility

To ensure that the SD card is functioning properly, use SD cards available from SMA. Compatibility with all SD cards available on the market cannot be guaranteed. The Sunny WebBox does not support SD cards with storage capacities of over 2 GB or SDHC cards.

Formatting the SD card.

Only use SD cards which have been formatted with the FAT32 file system.

The Sunny WebBox converts the SD card's file system to TFAT in order to increase data security. If you wish to clear the SD card, you must format the SD card on a computer with the FAT32 file system.

1. Select "WebBox > Settings > Security" in the user interface.
2. Make a selection in the "External memory" field.

"Enable"	Plant data is saved on the SD card.
"Disable"	No plant data is saved on the SD card.

3. Insert the SD card into the Sunny WebBox SD card slot.

☑ The SD card is configured. The Sunny WebBox will now save data to the SD card.

Data loss when removing the SD card

Do not remove the SD card while the "MEMORY" LED is flashing green or orange. This can damage the file system of the SD card and lead to data loss. Depending on the amount of data, the saving process can take some time.

When an SD card is inserted into the SD card slot, the Sunny WebBox copies all data from the internal memory to the external memory (SD card). The Sunny WebBox will save new data to the SD card until you remove it from the SD card slot. The "MEMORY" LED on the Sunny WebBox flashes orange to indicate that it is writing to the SD card.

The Sunny WebBox saves data to a specific directory folder on the SD card The name of the folder is "WebBox_[SerialNumber]". "[SerialNumber]" designates the serial number of the respective Sunny WebBox. The Sunny WebBox creates a subfolder in the main folder every day. Each subfolder contains all the data collected by the Sunny WebBox on that particular day. The Sunny WebBox will save further data onto the SD card once the SD card reaches its storage capacity ("MEMORY" LED glows red). Replace the SD card or format the SD card in your computer.

9.6.1 Setting Data Compression

The Sunny WebBox can compress all the data it receives from connected devices. To do so, the Sunny WebBox simply averages the data over a defined time period. Averaged data takes up less memory space in the Sunny WebBox.

1. Select "WebBox > Recording" on the user interface.
2. In the "Averaging over" field, select the time period over which the Sunny WebBox is to calculate the average.
3. Select [Save].

☑ Data compression is now set.

9.6.2 Displaying Available Memory Space in the Sunny WebBox

You can display the ring buffer capacity of the Sunny WebBox already in use as follows:

1. Log into the Sunny WebBox.
2. Select "WebBox > Info" in the user interface.

☑ The Sunny WebBox displays how full the ring buffer is in the "Sunny Portal Buffer Load" field on the user interface.

10 Settings

10.1 System

10.1.1 Setting Date and Time

1. Select "WebBox > Settings > System" in the user interface.
2. Select [Change] in the "Time zone (UTC offset)" field.
   ☑ The "Date / Time / Time zone settings" window opens.
3. Select the time zone in the "Time zone (UTC offset)" field.
4. Make a selection in the "Automatic change from summer time to winter time" field.

"yes"	Automatic change from summer time to winter time is active.
"no"	Automatic change from summer time to winter time is not active. Date and time have to be set manually.

5. Enter the current date in the "New date" field.
6. Enter the current time in the "New time" field.
7. Select [Save].

☑ The date and time are now set.

10.1.2 Setting the Language

1. Select "WebBox > Settings > System" in the user interface.
2. Select your language in the "Language" field.
3. Select [Save].

☑ The language is set.

10.1.3 Setting the Operator Name

1. Select "WebBox > Settings > System" in the user interface.
2. Enter the operator name in the "Operator name" field.
3. Select [Save].

☑ The operator name is now set.

10.2 Setting the Communication Type of the PV Plant

1. Select "Plant > Settings" in the user interface.
2. Select the device communication method in the "Interface" field.

"SMA-COM"	• All Sunny Boys • All Sunny Mini Central devices • All Sunny Island devices • All Sunny Backup devices • Sunny SensorBox • Sunny Central (US version only)
"ETHERNET"	• All Sunny Central devices (excluding US version)

3. If "SMA-COM" is selected, click [Save] and continue with section 10.2.1 "Setting SMA-COM" (page 61).

   or

   If "ETHERNET" is selected, click [Save] and continue with section 10.2.2 "Setting ETHERNET" (page 62).

10.2.1 Setting SMA-COM

If the devices of your PV plant are to communicate with the Sunny WebBox via SMA-COM, you must configure this communication method.

Data transmission protocols

SMA inverters use proprietary protocols for data transmission.

The inverters have been using the data protocol "SMA-NET" since the year 2000. Older inverters use the data protocol "SUNNY-NET". The SMA-NET and SUNNY-NET data protocols cannot be used together in a PV plant.

1. Select "Plant > Settings" in the user interface.
2. Select the data protocol of the devices in the "Transfer protocol" field. The following selections are possible for the listed inverter types:

"SMA-NET"	• Sunny Boys of type SWR, version BFR 8.22 or above • All type SB Sunny Boys • All Sunny Mini Central devices • All Sunny Island devices • All Sunny Central devices • Sunny SensorBox
"SUNNY-NET"	• Sunny Boys of type SWR prior to version BFR 8.22

Default Baud rate

If not all devices operate using the typical SMA baud rate setting of 1200 baud, communication problems may occur. Change the baud rate to 1200 baud if necessary. Only change the baud rate from 1200 baud when absolutely necessary.

3. Select the inverter baud rate in the "Baud rate" field (not if "Ethernet" is set as the communication method).

"1200"	All SMA devices
"9600"	Reserved for future developments
"19200"	Reserved for future developments

4. Select [Save].

☑ The PV plant communication has been set.

10.2.2 Setting ETHERNET

If the devices of your PV plant are to communicate with the Sunny WebBox via Ethernet, you must configure this communication method.

1. On the "PV subnet mask" of the user interface, enter the subnet mask of the communication bus of the central inverter page.

PV subnet mask

This subnet mask enables the separation of diverse IP address ranges on the communication bus of the central inverter side. The subnet mask is preset to 0.0.0.0 when the device is delivered.

2. Select [Save].

☑ The PV plant communication has been set.

10.3 Ethernet Network

10.3.1 Information on Extended Network Settings

Changing advanced network settings

Do not change any network settings in the network devices if you are not clear on the effects of the change. Changes to values could lead to the existing network not functioning or only partially functioning. If you have any questions, contact your network administrator.

You can assign static network settings to the Sunny WebBox or obtain the network settings dynamically via a DHCP server.

If you would like to make the Sunny WebBox available in the Internet, to allow, for example, direct access to the Sunny WebBox via the Sunny Portal, you must configure a Port rerouting in your router. Here you can adjust the network port of the Sunny WebBox if necessary.

10.3.2 Activating DHCP

The Sunny WebBox can obtain its network settings via a DHCP server (Dynamic Host Configuration Protocol). With this during the start of the Sunny WebBox the IP address, subnet mask, gateway and DNS server are automatically obtained from the DHCP server.

To detect the Sunny WebBox in your network, you can detect the current network settings via the SD card (see page 85).

Using DHCP

Before setting the Sunny WebBox to dynamic IP address assignment, check your DHCP server. The DHCP server must extend the lease of the assigned IP address. If the DHCP server assigns a new IP address after the lease has expired, we do not recommend using the DHCP server. DHCP servers can normally list all devices to which you have assigned an IP address. You can now identify the Sunny WebBox based on your MAC address. The MAC address of your Sunny WebBox is located on the type plate and the "WebBox > Info" page.

1. Select "WebBox > Settings > Network" in the user interface.
2. Select "Dynamic (DHCP)" in the "Obtain IP address" field.
3. Select [Save].
4. Under "DHCP", select "Yes" in the "Activated" field in order to receive the network settings dynamically assigned.
5. Select [Save].

☑ The Sunny WebBox obtains the network settings automatically via the DHCP server.

10.3.3 Network Ports

The Sunny WebBox uses four network ports for the various services. If these ports are reserved for other applications in your network, you can change the ports as follows:

Adjusting the network ports

Test the access to the Sunny WebBox Web server before you change the "Public virtual HTTP port" setting of the Sunny WebBox. In most cases, the settings do not have to be changed manually, as the router automatically forwards the queries to the correct ports via the network. Before adjusting the ports, contact your network administrator.

1. In the field "Public virtual HTTP port", enter the port enabled in the router for HTTP access. This port allows the web server of the Sunny WebBox to be accessed via the Internet.
2. In the "Webserver port" field, enter the port over which the Web server of the Sunny WebBox can be reached.

3. In the "Webservice port" field, enter the port which the Sunny WebBox uses to data to the Sunny Portal and which loads the Sunny WebBox firmware updates.
4. Select "yes" in the "Use Modbus" field to use the Modbus protocol for Sunny WebBox communication. If you activate the Modbus protocol, then unauthorized access to the Sunny WebBox is possible. In this case, users without a password will be able to access the spot values of supported devices and change the Sunny WebBox system time.**or**Select "no" in the "Use Modbus" field to deselect the Modbus protocol for Sunny WebBox communication.
5. Enter the port in the "Modbus port" field which the Sunny WebBox should use to communicate via the Modbus protocol. Port 502 is the default port here.
6. Select [Save].

☑ The Ethernet network of the Sunny WebBox is now configured.

10.4 Enable Modem Dialup

With this function, you can enable modem dialup via a dial-up connection to the Sunny WebBox. This setting does not affect how data is transferred to Sunny Portal via a modem. You can configure transmission to Sunny Portal in the user interface via "WebBox > Settings > Data trans." on the Web interface in the "Interface" field.

1. Select "WebBox > Settings > Modem" on the user interface.
2. Make a selection in the "Allow modem access" field.

"yes"	The Sunny WebBox can be accessed over a dial-up connection. Adjust further settings.
"no"	The Sunny WebBox cannot be accessed over a dial-up connection.

3. Enter the IP address at which the Sunny WebBox can be accessed via a dial-up connection in the "IP address" field.
4. Select the number in "Pick up after ring tone" field if the Sunny WebBox should establish the connection.
5. Select [Save].

☑ Whether the Sunny WebBox can or cannot be accessed via a dial-up connection will depend on the settings.

10.4.1 Testing the Connection

1. Select "WebBox > Settings > Modem" on the user interface.
2. Select [Connection test].

☑ A successful connection test means that all settings are correct.

If the connection test was not successful, check the modem settings (see section 6.7 "Configuring the Sunny WebBox for Modem Operation" (page 29)). Perform the connection test once again.

10.4.2 Testing the Signal Strength of the GSM Modem

1. Select "WebBox > Settings > Modem" on the user interface.
2. Select [Signal strength].

☑ The signal strength is displayed. A signal strength of at least 35 % is necessary to ensure secure communication with all cell phone network providers.

Improving signal strength

If sufficient reception is not possible in the building, use the optimal GSM antenna extension set for outside installation (see section 16 "Accessories" (page 95)).

10.4.3 Terminating a Connection

You can terminate an existing GSM connection.

1. Select "WebBox > Settings > Modem" on the user interface.
2. Select [Hang up].

☑ The connection is now terminated.

10.5 Ensuring Access Security

Network security

Protect your Ethernet from unauthorized access. Take suitable protective measures:

- Set up secure passwords (see 10.5.1 "Strength of Passwords" (page 66)).
- Change your passwords at regular intervals.
- Use different passwords for different user groups.
- Set up a firewall.
- Close unnecessary network ports.
- Never leave slips of paper with passwords lying around.

Check the quality of your password. Choose a more secure password if necessary. On initial installation of the Sunny WebBox (no devices have been detected yet), the user interface prompts you to change the default password.

10.5.1 Strength of Passwords

To increase the security of your password, note the following when selecting a password:

- Use passwords with a minimum length of 8 characters. The longer the password, the more secure it is.
- Do not use names or common words (e.g. dog, cat or house).
- Do not use data related to your person as passwords (for example names of persons or pets, personal numbers or identification numbers, car license plates).
- Do not repeat names or words (e.g., househouse, catcat).
- Use a combination of upper and lower case letters, special characters and numbers.
- Do not use number and letter combinations which are consecutive on a keyboard (for example "12345", "qwerty").

10.5.2 Change Password

Identical passwords for the user groups.

If your user password is the same as your installer password, you will automatically be logged in as an installer.

1. Log into the Sunny WebBox in the appropriate user group.
2. Select "WebBox -> Settings -> Security"

   ☑ The page for security settings opens.
3. Enter a secure password in the "User password" field and confirm it in the second field (see section 10.5.1 "Strength of Passwords" (page 66)).

4. Enter a secure password in the "Installer password" field and confirm it in the second field (see section 10.5.1 "Strength of Passwords" (page 66)).

Changing the "installer" user group password

The "installer" user group password can only be changed within the "installer" user group.

Information on password security

While you enter your password, the user interface of the Sunny WebBox displays information on the security level of the password entered. The Sunny WebBox categorizes passwords as "very unsafe", "unsafe", "adequate", "safe" and "very safe". Only select passwords whose security quality level is at least "safe".

5. Select [Save].

☑ The new password will be active the next time you log into the Sunny WebBox.

10.6 Setting Data Upload

The upload frequency setting is used to define how frequently the Sunny WebBox connects to the Sunny Portal or the external FTP server each day. You can also define the time when the Sunny WebBox connects to the Sunny Portal or the external FTP server. All data upload settings are related to both data upload to the Sunny Portal as well as to data upload to an external FTP server.

1. Select "WebBox > Settings > Data transmission" in the user interface.
2. Select the upload frequency in the "Upload frequency per time window" field.

Maximum number of upload attempts

If the data transmission from the Sunny WebBox to the Sunny Portal or external FTP server fails, the Sunny WebBox will make further attempts to transmit the data. The "Maximum number of upload attempts per time window" value specifies the number of data transmission attempts the Sunny WebBox makes within the defined time window.

3. Select the maximum number of upload attempts in each time window in the "Maximum number of upload attempts per time window" field.
4. Select [Save].

☑ The data upload is set.

10.7 Configuring the CSV Data Format

1. Select "WebBox > Recording" on the user interface.
2. In the "Format" field, select "CSV".
3. Select [Configure].

   ☑ The page for configuring the CSV data format opens.
4. Select the desired format of the file name in the "Filename format" field.
5. Make a selection in the "Create column headers" field.

"yes"	A header is added to the CSV file.
"no"	A header is not added to the CSV file.

6. In the "End-of-line character" field, choose the control character that separates the individual lines of the CSV file.

CSV data format for Excel import

Microsoft Excel can automatically import CSV file data into tables if the separator and the number format are properly configured. If you want to import the CSV data into Microsoft Excel for evaluation, set the separator to "Comma" and "#.##" as the number format.

7. In the "Separator character" field, select the separator that is used to separate the content in the CSV file.
8. In the "Number format" field, select the desired number format.
9. In the "Timestamp format" field, select the desired time format.
10. Select [Save].

☑ The CSV data format settings have been saved. Any changes you make will only apply to future files.

10.8 Retrieving or Requesting Data from the Device Memory

Retrieving data from the device memory is only possible for SMA inverters of the type Sunny Backup.

The Sunny WebBox (version 1.52 or higher) currently supports the retrieval of data from the device memory for SMA inverters of the type Sunny Backup.

The Sunny WebBox allows you to retrieve data from the memory of devices that are supported and have been detected by the Sunny WebBox. This data can either be retrieved automatically or requested manually. The device memory contains both the error memory and the event memory of the connected devices. Data from the event memory can only be requested manually. Data from the error memory can either be requested manually or retrieved automatically by the Sunny WebBox. If you have enabled automatic retrieval of data from the error memory, the Sunny WebBox will monitor the error memory of the connected device and automatically request error data whenever changes are made.

Regardless of which transmission method (automatic or manual) is being used, device memory data is organized chronologically in the event report of the Sunny WebBox. You can view the event report on the Sunny WebBox user interface (see section 8.4 "Displaying the Event Report" (page 49)).

10.8.1 Activating/Deactivating Automatic Data Retrieval from Error Memory

1. Select "WebBox > Recording > Device memory" in the user interface.
2. To enable automatic retrieval of data from the error memory, select "yes" from the "Automatically retrieve data from error memory" field.

   or

   To disable this function, select "no" (default setting).
3. Select [Save].

☑ The error memory settings are now saved.

10.8.2 Manually Requesting Data from the Error or Event Memory

It is not possible to request data from the event memory and the error memory at the same time. Wait until the status of Sunny WebBox is "Idle" before requesting data from the device memory.

1. Select "WebBox > Recording > Device memory" in the user interface.
2. To begin manual retrieval of data from the error memory, select [request] from the "Manually requesting fault memory" field.
3. To begin manual retrieval of data from the event memory, select [request] from the "Manually requesting event memory" field.

☑ The Sunny WebBox is now configured to retrieve data from the selected device memory.

10.9 Notification in Case of Error

10.9.1 Notes on Notification in Case of Error

The Sunny WebBox can notify you by e-mail when an error event occurs. An Internet connection is required for this feature. If your Sunny WebBox comes with a GSM modem, you can also be notified via SMS. This allows you to react rapidly to failures in your PV plant and minimize downtime.

Sunny WebBox reports an error event after two intervals of data compression

If you have activated the error alarms, the Sunny WebBox will send error events via e-mail and, if a GSM modem has been installed, via SMS. The Sunny WebBox reports error type events, which persist twice as long as the time set for forming averages for data compression (see section 9.6.1 "Setting Data Compression" (page 58)). For example, if you have set that the Sunny WebBox always forms averages after 15 minutes, Sunny WebBox reports error type events which persist for more than 30 minutes. The Sunny WebBox does not send warning and disturbance type events per e-mail or SMS.

Additional costs for notification in case of error

Depending the selected communication type, additional costs may be incurred to you for notification in case of error. Ask your service provider about possible additional costs.

Warning or fault event reports from the Sunny Portal

You can configure the Sunny Portal to send you reports on warning or fault events via e-mail. The e-mails can be forwarded to a cell phone via an e-mail to SMS message service provider. Sunny WebBox settings regarding enabled notification in the event of errors do not affect the event reports you can configure in Sunny Portal.

Displaying Error, Warning and Disturbance Type Events via the user interface

The Sunny WebBox enters error, warning and disturbance type events in the event report, and displays them via the user interface (see section 8.4 "Displaying the Event Report" (page 49)).

10.9.2 Enabling/Disabling Notification in Case of Error

1. Integrate the Sunny WebBox in your network (see section 27) or configure the GSM modem (see section 29).
2. Select "WebBox > Settings > Data transmission" in the user interface.
3. Make a selection in the "Notification active" field.

"yes"	Notification is active. Adjust further settings.
"no"	Notification is not active. Select [Save].

4. Make a selection in the "Multiple Notices" field.

"yes"	The Sunny WebBox will send you an SMS when an error event occurs. If the error persists after 24 hours and after 48 hours, Sunny WebBox will notify you in each case.
"no"	The Sunny WebBox will notify you once an error event occurs.

5. Make a selection in the "send error as e-mail message" field:

"yes"	The Sunny WebBox informs you via email when an error type event occurs. The input field for the e-mail address appears. Continue with step 6.
"no"	Notification by e-mail is deactivated. Continue with step 8.

6. Enter your e-mail address. If the Sunny WebBox is to send notification to multiple e-mail addresses, enter the e-mail addresses with commas as separators.
7. Click [test].

   ☑ The Sunny WebBox sends a test e-mail to the telephone number entered. If the test e-mail was not sent, check your e-mail inbox spam folder, your local network settings (see page 27), or the settings and signal strength of the GSM modem (see page 29).
8. If a GSM modem is installed on the Sunny WebBox, make a selection in the "Send error as SMS message" field.

"yes"	The Sunny WebBox informs you via SMS when an error type event occurs. The input field for the call number will appear. Continue with step 9.
"no"	Notification via SMA is deactivated. Continue with step 10.

9. If a GSM modem is installed on your Sunny WebBox, enter the telephone number for SMS message notification and select [test].

   ☑ The Sunny WebBox sends a test e-mail to the telephone number entered.
10. Select [Save].

☑ Notification in case of error is activated.

11 Service Functions

11.1 Information on Firmware Updates

You have the option of updating the Sunny WebBox firmware. The firmware can be updated with or without access to Sunny Portal. When the Sunny WebBox firmware is updated, all the settings and data will be saved.

You can update the Sunny WebBox firmware in the following ways:

- Firmware update via Sunny Portal
- Firmware update via SD card

The user interface is temporarily unavailable.

During the update, the Sunny WebBox restarts and you cannot access the Sunny WebBox for a brief period.

Do not disconnect the Sunny WebBox from the power supply during the update process.

11.2 Firmware Update via Sunny Portal

If the Sunny WebBox has portal access, you can choose to have the firmware updated automatically or manually. The Sunny WebBox checks whether a new firmware version is available every time data is transmitted to Sunny Portal. If a new firmware update is available, the Sunny WebBox will download and install the firmware update between 12:00 a.m. and 4:00 a.m. Automatic firmware update is activated on delivery.

Automatic firmware update when using the Power Reducer Box

With firmware version 1.52 or higher, you can also enable automatic firmware updates if you are using the Sunny WebBox with the Power Reducer Box.

11.2.1 Enabling Automatic Firmware Update (recommended)

1. Select "WebBox > Settings > Data transmission" in the user interface.
   ☑ The "Data transmission" page opens.
2. Make a selection in the "Automatic firmware updates" field:

"yes"	Automatic firmware update is activated.
"no"	Automatic firmware update is deactivated.

3. Select [Save].

☑ Automatic firmware update is activated or deactivated depending on the setting.

11.2.2 Manually Updating the Firmware

1. Select "WebBox > Info" on the user interface.
   ☑ The "System information" page opens. If a new firmware version is available, the new version is displayed.
2. If a new version is available, select [Refresh].

☑ The Sunny WebBox downloads and installs the new firmware.

11.3 Firmware Update via SD Card

Formatting the SD card.

Only use SD cards which have been formatted with the FAT32 file system. The Sunny WebBox converts the SD card's file system to TFAT in order to increase data security. If you wish to clear the SD card, you must format the SD card on a computer with the FAT32 file system.

Disabling write protection on the SD card.

Write protection on the SD card must be disabled during the update process.

1. Select the required update file in the downloads area of www.SMA.de/en and download it to your computer.
2. Connect the SD card to the computer and create a folder called "Update" on the SD card.
3. Copy the downloaded update file to the "Update" folder created on the SD card and then remove the SD card from the computer.

Saving only 1 update file in the "Update" folder.

The "Update" folder may only contain 1 update file. If there is more than 1 update file in the "Update" folder, the firmware will not be updated.

4. Insert the SD card into the Sunny WebBox SD card slot.
   ☑ The update starts automatically. The Sunny WebBox is again available via the user interface after a successful update procedure.
5. Check whether the Sunny WebBox is available via the user interface.
6. If the Sunny WebBox can be accessed via the user interface, you can remove the SD card.
   If the Sunny WebBox cannot be accessed via the user interface, do not remove the SD card.

☑ The firmware is now updated.

11.4 Stopping the Sunny WebBox

You can stop the Sunny WebBox in one of the following ways:

- Stopping the Sunny WebBox via the user interface
- Stopping the Sunny WebBox by removing the plug-in power supply from the socket

Stopping the Sunny WebBox via the User Interface

1. Log into the Sunny WebBox as an installer.
2. Select "WebBox > Info" on the user interface.
3. Select [Stop System].
   ☑ A window containing a security question opens.
4. Click [Confirm].
   ☑ The Sunny WebBox quits all programs and switches off the Web server.
5. If the "POWER" LED is green and all other LEDs are red, disconnect the plug-in power supply from the power outlet.

☑ The Sunny WebBox has been stopped.

Stopping the Sunny WebBox by removing the plug-in power supply from the socket

Loss of data when disconnecting the Sunny WebBox from the power supply

Do not remove the Sunny WebBox plug-in power supply from the socket when the "MEMORY" LED light is flashing orange.

1. Remove the plug-in power supply from the socket.

☑ The Sunny WebBox has been stopped.

11.5 Resetting the Sunny WebBox

During resetting, specific Sunny WebBox settings are returned to the factory setting. If you only wish to restart the Sunny WebBox without resetting the settings, see section 11.4 "Stopping the Sunny WebBox" (page 74).

Data backup

Before you reset the Sunny WebBox, take note when necessary of all settings such as network or portal settings. In addition secure the PV plant data in order to avoid data losses.

You can reset the Sunny WebBox in different ways and to various degrees:

- Resetting the Sunny WebBox via the user interface
- Reset the Sunny WebBox via the Reset button

Via user interface	Via reset button
All settings will be reset. The Sunny WebBox is now reset to the delivery status.	The following settings will be reset: • Passwords or • Network settings or • All settings The Sunny WebBox is now reset to the delivery status.

After resetting, adjust the plant ID for Sunny Portal

If you reset the Sunny WebBox settings, the Sunny WebBox will delete all login settings for Sunny Portal. If you start the Sunny WebBox without making further settings, the Sunny WebBox creates a new plant with a new plant identifier in Sunny Portal.

If the Sunny WebBox is to send the data to the existing plant in Sunny Portal, take the following steps after the reset:

- Assign the plant identifier of the old system to the replacement device (see section 9.2.3 "Adjusting the Plant ID for Sunny Portal" (page 52)).
- In the replacement device, enter the e-mail address of a user with administrator authorizations for the system in Sunny Portal.

Resetting the Sunny WebBox via the User Interface

1. Log into the Sunny WebBox as an installer.
2. Select "WebBox > Info" on the user interface.
3. Select "Factory settings".

   ☑ A window containing a security question opens.
4. Click [Confirm].

   ☑ The Sunny WebBox is now reset to its factory settings and switches off the Web server.
5. If the "POWER" LED is green and all other LEDs are red, disconnect the plug-in power supply from the power outlet.
6. Wait 15 seconds.
7. Reconnect the plug-in power supply to the power outlet.

☑ The Sunny WebBox will now start with the factory settings.

Resetting the Sunny WebBox via the Reset Button

Beginning with Sunny WebBox version E1, the hole for the Reset button is found on the rear panel of the Sunny WebBox under the upper left foot.

Only press the reset button when the Sunny WebBox is switched on.

1. If the Sunny WebBox is mounted on a top-hat rail, remove it from the top-hat rail.

   If the Sunny WebBox is mounted directly to a wall, push the Sunny WebBox upwards slightly and remove the Sunny WebBox from the top hat rail.

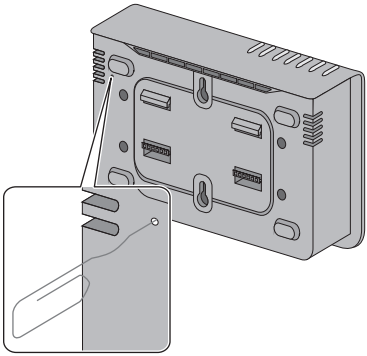
Resetting specific Sunny WebBox settings.

Depending on how long you press the Reset button, the Sunny WebBox performs the actions listed in the following table.

Time	Action
1 – 5 seconds	Resetting the passwords to the factory setting. All other settings (event memory, network settings, modem settings, and portal settings) will remain intact.
5 – 15 seconds	Resetting the network settings to the factory setting. All other settings (event memory, modem settings, portal settings and passwords) will remain intact.
15 – 30 seconds	Resets all settings (event memory, network settings, modem settings, Sunny Portal settings and passwords) of the Sunny WebBox to the default values. The Sunny WebBox deletes the plant data and plant settings completely.

2. Insert a pointed object (such as a paper clip) into the hole and press the reset button.

☑ The Sunny WebBox is now reset.



11.6 Deleting Device Descriptions

1. Log into the Sunny WebBox as an installer.
2. Select "WebBox > Info" on the user interface.
3. Select [Delete device descriptions].

☑ The unit descriptions of all devices will be erased. When the Sunny WebBox is restarted, all unit descriptions will be detected again automatically.

12 Maintenance and Care

12.1 Maintenance

Conduct regular visual inspections of the Sunny WebBox to check for external damage or dirt.

12.2 Care

NOTICE!

Damage or destruction of the Sunny WebBox due to ingress of liquids. The Sunny WebBox is not waterproof.

- Protect the Sunny WebBox from wet conditions.
- To clean the Sunny Beam, only use a lightly dampened cloth to prevent the penetration of moisture. If there is a considerable amount of dirt, you can also use a mild, non-abrasive, non-corrosive cleaning agent.

13 Decommissioning

13.1 Disassembling the Sunny WebBox

DANGER!
Risk of lethal electric shock when opening the inverter.

- All work on the inverter may only be carried out by an electrically skilled person.
- Disconnect the inverter on the AC and DC sides as described in the inverter manual.

1. Stop the Sunny WebBox as described in section 11.4 "Stopping the Sunny WebBox" (page 74).
2. If an SD card is in the SD card slot of the Sunny WebBox, remove it.
3. Disconnect the DC plug connector of the plug-in power supply from the Sunny WebBox.
4. If the Sunny WebBox is connected to the telephone network via a modem connection, disconnect the telephone cable from the Sunny WebBox.
5. If the Sunny WebBox is connected directly to a computer or a local network via the Ethernet connection, disconnect the Ethernet cable from the Sunny WebBox.
6. Remove the RS485 plug from the Sunny WebBox.
7. If the Sunny WebBox is mounted on a top-hat rail, push the enclosure of the device slightly upwards and remove the Sunny WebBox from the rail.
8. If the Sunny WebBox is mounted directly to a wall, push the Sunny WebBox slightly upwards and remove it from the wall.

☑ The Sunny WebBox has been dismounted.

13.2 Packaging the Sunny WebBox

When returning the device to us, use packaging that adequately protects the device from damage during transport (use the original packing if possible).

13.3 Disposing of the Sunny WebBox

Dispose of the Sunny WebBox at the end of its service life in accordance with the disposal regulations for electronic waste which apply at the installation site at that time. Alternatively, send it back to SMA with shipping paid by sender, and labeled "ZUR ENTSORGUNG" ("FOR DISPOSAL").

14 Troubleshooting

Problem	Cause	Rectification
The Sunny WebBox is not available via the user interface.	The network connection of the Sunny WebBox has been interrupted.	Make sure the Sunny WebBox is connected to the network. Check the network cable and all the connections of the Sunny WebBox and the computer.
	The network settings of the computer do not match the network settings of the Sunny WebBox.	Determine the network settings of the Sunny WebBox (see section 15.2 "Determining the Network Settings of the Sunny WebBox" (page 85)). Configure your computer based on the Sunny WebBox network settings (see section 15.2 "Determining the Network Settings of the Sunny WebBox" (page 85)).
		Check the settings of your router.
		Check your Web browser settings. If necessary, set an exception for a proxy server.
		Reset the network settings of the Sunny WebBox via the Reset button (see section "Resetting the Sunny WebBox via the Reset Button" (page 76)). Press and hold the reset button for 5 – 15 seconds. Set your computer to the Sunny WebBox default settings as described in section 6.4.2 "Windows 7, Windows Vista" (page 22).
Sunny WebBox is unable connect via DSL router.	The DSL routers of some manufacturers can become disconnected when the DSL router switches to energy saving mode.	Disable the energy saving mode of the DSL router.
		Use the "LAN 1" port of the DSL router since the energy saving mode for this port is usually disabled by default.

Problem	Cause	Rectification
Sunny WebBox is unable to connect via the GSM modem.	The GSM modem settings are not correct.	Check the GSM modem settings (see section 10.4.1 "Testing the Connection" (page 65)). Perform a connection test (see section 10.4.1 "Testing the Connection" (page 65)). Correct the settings if necessary.
	The SIM card is not enabled for operation.	Check whether the SIM card is enabled for operation. If necessary, have the card enabled for operation.
	The GSM modem signal strength is not sufficient.	Test the GSM modem signal strength (see section 10.4.2 "Testing the Signal Strength of the GSM Modem" (page 65)). If sufficient reception is not possible in the building, use the optimal GSM antenna extension set for outside installation (see section 16 "Accessories" (page 95)).
Sunny WebBox restarts repeatedly.	There is more than one update file in the "Update" folder on the SD card.	Remove the SD card from the SD card slot of the Sunny WebBox. Make sure there is only one update file in the "Update" folder on the SD card. Once the startup process of the Sunny WebBox is complete, restart the firmware update (see section 11.3 "Firmware Update via SD Card" (page 73)).

Problem	Cause	Rectification
Sunny WebBox unable to detect devices connected to the RS485 bus.	The data transmission protocol and the baud rate are not configured properly.	Make sure the data transmission protocol and the baud rate for the connected devices are configured properly (see section 10.2.1 "Setting SMA-COM" (page 61)).
		Check the cabling of the devices on the RS485 communication bus. Refer to the RS485 cabling diagram for information on how the cables should be connected to the RS485 communication bus.
		Make sure the RS485 cable is properly connected to the Sunny WebBox. Check all connections (see section 6.8.2 "Connecting the Sunny WebBox to the RS485 Communication Bus" (page 37)).
		Check the termination and signal biasing of the RS485 communication bus (see section 6.8.2 "Connecting the Sunny WebBox to the RS485 Communication Bus" (page 37)).
The Sunny WebBox will not transmit data to Sunny Portal.	Data transmission is deactivated.	Configure data transmission to the Sunny Portal (see section 9.2.1 "Registering Sunny WebBox in the Sunny Portal" (page 51)).
		Check the specified plant name and e-mail address. You may need to register an account on the Sunny Portal again.
		Contact the SMA Serviceline.
The data upload to Sunny Portal via the analog or GSM modem fails repeatedly.	Incorrect Internet Service Provider data.	Check the entered data of your Internet Service Provider.

Problem	Cause	Rectification
Sunny WebBox does not transmit data via FTP push. The "NETCOM" LED glows red.	The FTP push function is deactivated.	Activate the FTP push function of the Sunny WebBox (see section 9.4 "FTP Push Function" (page 55)).
	You are not connected to the Internet.	Reestablish Internet access. If necessary, contact your Internet Service Provider.
	The Sunny WebBox FTP push function is not set correctly.	Check that the server address, the user name and the password are set correctly in the FTP push settings (see section 9.4 "FTP Push Function" (page 55)).
		Check whether the user has write authorizations to the server's upload directory (see section 9.4 "FTP Push Function" (page 55)).
		Check whether the server port is set to the correct value (see section 9.4 "FTP Push Function" (page 55)).
		Test the Sunny WebBox FTP push function (see section 9.4 "FTP Push Function" (page 55)).
After an FTP download, the Internet Explorer shows old Sunny WebBox data.	Given the way Microsoft Internet Explorer handles cache, the Sunny WebBox may load outdated data.	Use an FTP client such as FileZilla to load data from the internal FTP server of the Sunny WebBox.
The Sunny WebBox daily reports and monthly reports are incomplete.	Sunny WebBox Communication via the GSM modem is not sufficiently stable. The Sunny WebBox is not transmitting the complete daily reports and monthly reports.	Choose a better mounting location for the GSM antenna (see section 6.7.4 "Determining the Mounting / Installation Location for the GSM Version" (page 33)). If sufficient reception is not possible in the building, use the optimal GSM antenna extension set for outside installation (see section 16 "Accessories" (page 95)).
	The Sunny WebBox attempts the next upload before the current data transmission is finished. The data transmission starts over again.	Reduce the maximum number of upload attempts in a time window (see section 10.6 "Setting Data Upload" (page 67)).
The events in the event report do not appear in the usual positions under "time".	The time settings of the Sunny WebBox and the connected device do not match.	Synchronize the time settings of the Sunny WebBox and the connected device (see respective manuals).

Problem	Cause	Rectification
Events in the event report do not appear in the language you selected.	The text messages for events in the connected device are not in the language you selected.	none
After a Sunny WebBox is replaced, Sunny Portal contains two plants with the same name.	A Sunny WebBox that is supplied as a replacement device logs into Sunny Portal with a new plant identifier. Sunny Portal creates a new plant for this plant ID, even if you gave the plant the same name.	Assign the plant identifier of the old system to the replacement device (see section 9.2.3 "Adjusting the Plant ID for Sunny Portal" (page 52)).
		In the replacement device, enter the e-mail address of a user who has Sunny Portal administrator rights to the plant.
		In Sunny Portal, delete the new plant the replacement device created.
Sunny WebBox unable to detect an inserted SD card.	External storage is disabled in the Sunny WebBox settings.	Enable external storage in the Sunny WebBox settings (see section 9.6 "Storing Recorded Data on an SD Card" (page 57)).
	The SD card is not formatted with the FAT32 file system.	Format the SD card with the FAT32 file system.
	The Sunny WebBox does not support SD cards with storage capacities of over 2 GB or SDHC cards.	Use SD cards with less than 2 GB of storage capacity.
	The SD card is not compatible with the Sunny WebBox.	Use one of the SD cards supplied by SMA. Compatibility with all SD cards available on the market cannot be guaranteed.
The "SMACOM" LED glows red.	More than one master is connected on the RS485 communication bus. On a communication bus, a master can access the shared communication bus at any time. It does not have to take other devices into consideration. If more than one master is connected to the communication bus, the devices will block each other.	Make sure that no more than one master is connected to the RS485 communication bus. SMA devices which can be connected to a communication bus as a master include the Sunny WebBox and Sunny Boy Control.
The "SYSTEM" LED glows red.	The operating system of the Sunny WebBox is damaged.	Contact the SMA Serviceline.

15 Appendix

15.1 Allocating an IP Address in a Local Network

You select a static IP address (Internet Protocol). Use the address range which is available to your router. In most cases the address range of the router lies between 192.168.0.1. and 192.168.255.254. If necessary refer to the manual of your router.

Please note during the allocation of the IP address that the first three address parts of the IP address must be identical for all participants of the same network. You may not allocate the same IP address twice.

Example:

Router:	***192.168.0.****1*
Computer 1	***192.168.0.****2*
Computer 2	***192.168.0.****3*
Sunny WebBox	***192.168.0.****168*

15.2 Determining the Network Settings of the Sunny WebBox

With the following steps you can determine the current network settings of the Sunny WebBox. You can then configure your computer to allow you to access the Sunny WebBox again (see section 10.3 "Ethernet Network" (page 62)).

1. If necessary, remove the write protection of the SD card.
2. Insert the SD card into the SD card slot of the Sunny WebBox (see section 9.6 "Storing Recorded Data on an SD Card" (page 57)).
   ☑ "MEMORY" LED flashes orange. The Sunny WebBox saves data to a specific directory folder on the SD card The name of the data file is "WebBox_[SerialNumber]", whereby [SerialNumber] designates the serial number of the respective Sunny WebBox.
3. Wait until the "MEMORY" LED glows green.
4. Remove the SD card from the SD card slot of the Sunny WebBox.
5. Connect the SD card to a computer.
6. Open the directory on the SD card ("WebBox_SerialNumber").
   This directory contains a file named "config.xml".
7. Open the "config.xml" with a text editor or Internet Explorer.

☑ Open the configuration file of the Sunny WebBox. See the configuration file for the required information (see section 15.3 "Structure of the Config.xml File" (page 86)).

15.3 Structure of the Config.xml File

```
<?xml version="1.0" encoding="utf-8"?>
<WebBox>
  <Settings>
    <add key="Version" value="1.5" />
    <add key="Plant-ID" value=" " />
    <add key="User-ID" value="Max.Mustermann@sma.de" />
<add key="DHCP" value="false" />
    <add key="IP-Address" value="192.168.0.168" />
    <add key="SubNetMask" value="255.255.255.0" />
    <add key="Gateway" value="192.168.0.100" />
    <add key="DNS-Server" value="192.168.0.100" />
       <add key="NAT-Port" value="80" />
    <add key="Webserver-Port" value="80" />
    <add key="Webservice-Port" value="80" />
  </Settings>
  <Export>
    (...)
  </Export>
</WebBox>
```

Setting	Meaning
Version	Sunny WebBox firmware version
Plant ID	Plant ID for Sunny Portal
User ID	User ID for Sunny Portal
DHCP	Displays "true" when DHCP use is enabled and "false" when DHCP use is disabled.
IP address	The IP address of the Sunny WebBox as configured by the user or obtained from the DHCP server.
SubNetMask	The subnet mask of the Sunny WebBox as configured by the user or obtained from the DHCP server.
Gateway	The gateway address of the Sunny WebBox as configured by the user or obtained from the DHCP server.
DNS server	The DNS server address of the Sunny WebBox as configured by the user or obtained from the DHCP server.

15.4 Structure of the Info.xml File

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<Info xmlns="http://www.sma.de/XMLSchema.xsd">
  <SerialNumber>150002132</SerialNumber>
  <MacAddress>00-40-AD-1E-08-54</MacAddress>
  <Created>2009-07-21T15:43:20</Created>
  <Version>1.50</Version>
  <OSVersion>1.26</OSVersion>
</Info>
```

Description of the XML tags

Setting	Meaning
Serial number	Sunny WebBox serial number.
MacAddress	Hardware address of the Sunny WebBox.
Created	Time of the FTP push connection test
Version	The current firmware version of the Sunny WebBox
OSVersion	Version of the Sunny WebBox operating system

15.5 Structure of an XML Data File

```
<?xml version="1.0" encoding="utf-8"?>
<WebBox>
  <Info>
    <Created>2010-02-10T01:37:04</Created>
    <Culture>de</Culture>
  </Info>
   <MeanPublic>
  <Key>WR38-006:2000333615:Ipv</Key>
  <First>10.360</First>
  <Last>20.225</Last>
  <Min>10.360</Min>
  <Max>20.225</Max>
  <Mean>14.425071</Mean>
  <Base>14</Base>
  <Period>900</Period>
  <TimeStamp>2010-06-23T16:30:38</TimeStamp>
   <MeanPublic>
      (...)
   </MeanPublic>
<WebBox>
```

Description of the XML tags

Setting	Meaning
Info	Information
Created	Date of generation
Culture	Language
MeanPublic	Data of the mean values
Key	Name of the element made up of device name, serial number of the device and the channel. Individual values are separated by a colon. Example: WR38-006:2000333615:Ipv
First	The first value prior to the query
Load	The last value of the query
Min	Smallest value of the measurement interval
Max	Largest value of the measurement interval
Mean	Average value of the measurement interval

Base	Number of measured values in the interval
Period	Length of the measurement interval in seconds
TimeStamp	Time stamp, at which the average was calculated

15.6 Sunny WebBox with GSM Modem

15.6.1 Notes on GSM Card Contract

In contrast to land line telephones, cell phone network providers distinguish between voice and data services. For example, cell phone network providers provide different telephone numbers for voice and data for GSM devices.

If both outgoing and incoming data connections are necessary, a GSM device will need its own data number for CSD data services. The Sunny WebBox does not support other data services. A standard SIM card with additional data connectivity has two telephone numbers (multi-numbering). You can apply for additional data connectivity with your service provider when obtaining a contract. Outgoing data connections from the Sunny WebBox (access to an Internet service provider) are possible without an additional data number.

15.6.2 Selecting the GSM Tariff

Select a GSM tariff based on the data volume of the connected devices. Refer to the following table to find out about the inverter's expected monthly data volume.

Selecting the right GSM tariff

The specified data volumes only serve a rough guide. They are based on the number of connected devices and their settings. Contact SMA if you have any questions about which tariff to choose.

GPRS data transmission

The Sunny WebBox's GSM modem supports GPRS data transmission.

Sunny WebBox with...

...up to 5 devices	...up to 30 devices	...up to 50 devices
ca. 30 MB per month*	ca. 300 MB per month*	ca. 400 MB per month*

*These values represent estimated data volume. No responsibility is taken for the correctness of this information.

15.6.3 GSM Card Contracts in Germany

	Cell phone network provider*		
	T-D1	**Vodafone**	**e-plus**
ISP telephone number	*99***1#	*99***1#	*99***1#
ISP user name	t-d1	d2	e-plus
ISP password	sma	sma	gprs
GMS SIM PIN	Based on the documentation you received.		
GPRS APN	internet.t-d1.de	web.vodafone.de	internet.eplus.de

No responsibility is taken for the correctness of this information. Subject to errors and changes. The above information only applies to Germany. (Status as of: 2010-07-01)

15.6.4 Retrofitting the SIM Card

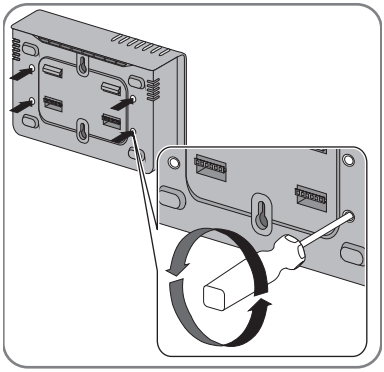
This section describes how to retrofit an SIM card. You only need to retrofit a SIM card if you ordered the following Sunny WebBox:
SUNNYWEBBOX-x5xx (integrated GSM modem without an integrated SIM card).

NOTICE!

Electrostatic discharges (ESD) may damage or destroy the Sunny WebBox.

- Installation work on the Sunny WebBox may only be performed by qualified personnel.
- Avoid coming into contact with components' connections and plug contacts.
- Ground yourself before working on the device.

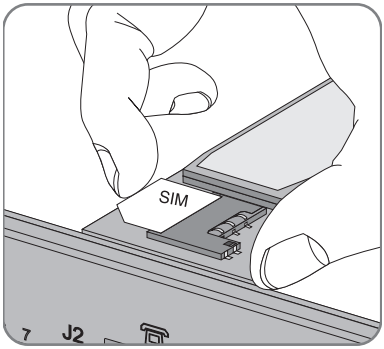
1. Using a Phillips screwdriver, unscrew the 4 screws at the rear and store them in a safe place.



2. Turn the Sunny WebBox so that the lid faces upwards.
3. Remove the lid of the Sunny WebBox and store it in a safe place.

4. Insert the SIM card into the Sunny WebBox.
5. Position the lid of the Sunny WebBox on the enclosure and screw it into place.

☑ The SIM card is retrofitted.



15.6.5 Replacing the SIM card

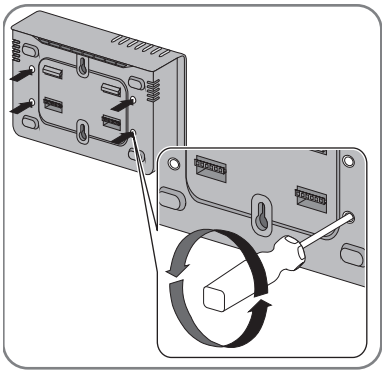
This section describes how to replace a SIM card if you want to install the SIM card of your new cell phone network provider.

NOTICE!

Electrostatic discharges (ESD) may damage or destroy the Sunny WebBox.

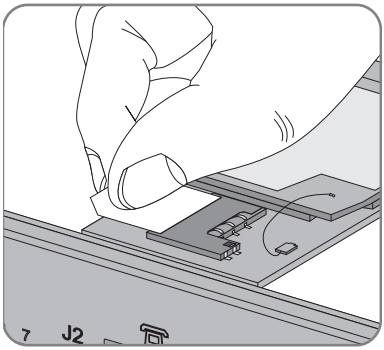
- Installation work on the Sunny WebBox may only be performed by qualified personnel.
- Avoid coming into contact with components' connections and plug contacts.
- Ground yourself before working on the device.

1. Using a Phillips screwdriver, unscrew the 4 screws at the rear and store them in a safe place.



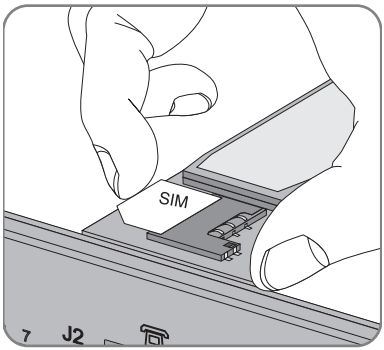
2. Turn the Sunny WebBox so that the lid faces upwards.
3. Remove the lid of the Sunny WebBox and store it in a safe place.

4. Remove the old SD card from the Sunny WebBox.



5. Insert new SIM card in the Sunny WebBox.
6. Position the lid of the Sunny WebBox on the enclosure and screw it into place.

☑ The SIM card is replaced.



15.6.6 Accessing Sunny WebBox via Integrated Analog Modem

This section describes how to access your Sunny WebBox from any computer with a modem via the integrated modem.

The computer must be equipped with an analog modem or an ISDN modem with CAPI driver.

IP addresses assigned to Sunny WebBox and modem

The Sunny WebBox is assigned the IP address 192.168.0.168 in your network. The modem on the receiver is assigned the IP address 192.168.0.169 in your network. These IP addresses may not be assigned to other devices in your computer's network.

1. Install and connect the computer modem to the telephone network as described in the modem's user manual.
2. Start Internet Explorer on the computer.
3. In Internet Explorer, select "Tools > Internet Options".
   ☑ The "Internet Options" window opens.
4. Select the "Connections" tab.
5. Select [LAN Settings].
6. If there is no checkmark in the "Use a proxy server for your LAN" box, continue to section "Configure dial-up connection".
7. If there is a checkmark in the "Use a proxy server for LAN" box, click "Advanced...".
8. Add "192.168.*" at the end of the entry in the "Do not use proxy server for addresses beginning with" field. Use semicolons to separate multiple entries.
9. Select [OK] in the "Proxy Settings" window.
10. Select [OK] in the "Local Area Network (LAN) Settings" window.
11. Select [OK] in the "Internet Options" window.

☑ Internet Explorer is now configured.

Establishing a Dial-Up Connection Using Windows XP as an Example

1. In Windows, go to "Start > Settings > Network Connections" and then select "New Connection" from the File menu.
   ☑ The "New Connection Wizard" window opens.
2. Select [Next].
   ☑ A window for selecting the network connection type opens.
3. Select "Connect to the Internet" and click [Next].
4. Select "Set up my connection manually" and click [Next].
   ☑ A window for selecting the Internet connection opens.
5. Select "Connect using a dial-up modem" and click [Next]. Make the same selection when connecting via ISDN.
   ☑ A window for entering the connection name opens.
6. Enter a connection name and click [Next].
   ☑ The "Phone number to dial" window opens.
7. Enter the number of your Sunny WebBox and select [Next].
   Enter 0 before the telephone number if your computer is connected to a telephone system which requires you to first press 0 before connecting to outside lines.
   ☑ The "Connection Availability" window opens.
8. Select the access rights for the connection.
   If you are not certain, select "All users".
9. Select [Next].
   ☑ The "Internet Account Information" window opens.
10. Enter "User name" (either "User" or "Installer").
    The user group selection does not affect the access rights to the Sunny WebBox.
11. Enter the password.
12. Select [Next].
    ☑ A summary of the selections you made appears.
13. Select "Finish".

☑ The dial-up connection set up has been completed. The computer establishes a connection.

16 Accessories

16.1 Outdoor GSM Antenna

The outdoor GSM antenna allows you to connect the Sunny WebBox to the GSM network. The prefabricated cable length is 10 m.

Order number: SWB-OUTANGSM 100

16.2 SD Cards

As an alternative to the internal ring buffer, you can also store data from the Sunny WebBox on an SD card.

Order number for SD card with 1 GB of memory: SD-Card 1 GB

Order number for SD card with 2 GB of memory: SD-Card 2 GB

16.3 RS485 Communication Cable

With the RS485 communication cable, you can connect the Sunny WebBox to the RS485 communication bus.

Order number for SMA communication cable (outdoor): COMCAB-OUTxxxx*

Order number for SMA communication cable (indoor): COMCAB-INxxxx**

*available in the following lengths xxx = 100 m / 200 m / 500 m / 1 000 m

**available in the following lengths xxx = 100 m / 200 m / 500 m / 1 000 m

17 Technical Data

17.1 Sunny WebBox

Mechanical Data

Width x height x depth	255 mm x 130 mm x 57 mm
Weight	750 g

Power Supply

Typical power consumption	4 W
Maximum power consumption	10 W

Environmental Conditions

Ambient temperature	–20 °C ... +65 °C
Relative air humidity	5 % ... 95 %, non-condensing
Degree of protection*	IP20
Mounting location	Indoors

* Degree of protection according to DIN 60529

Communication

Inverters other than Sunny Central	RS485, maximum 50 inverters
Sunny Central	RS485, 10/100 Mbit Ethernet, maximum 50 inverters
Computer	10/100 Mbit Ethernet
Modem*	Analog, GSM
RS485 communication range	1 200 m
Ethernet communication range	100 m

* optional

Other

Languages for the software user interface	German, English, French, Italian, Spanish, Greek, Korean, Portuguese, Czech, Dutch
Internal ring buffer	8 MB
Additional memory via SD memory cards*	128 MB / 512 MB / 1 GB / 2 GB

* optional

17.2 Plug-in Power Supply (CINCON, TRG30R 120)

Mechanical Data

Width x height x depth	107.8 mm x 57.5 mm x 33.5 mm
Weight	300 g

Power Supply

Voltage	100 V – 240 V AC, 50 / 60 Hz
Nominal current	0.8 A

18 Contact

If you have technical problems concerning our products, contact the SMA Serviceline. We need the following information in order to provide you with the necessary assistance:

- Operating system of your computer
- Sunny WebBox software version
- Serial number and hardware version of your Sunny WebBox.
- Type of communication interface between Sunny WebBox and the inverters
- Type and serial numbers of the inverters connected to the plant.
- If you need to send in the Sunny WebBox, be sure to remove the SD card from the SD card slot of the Sunny WebBox.

SMA Solar Technology AG

Sonnenallee 1

34266 Niestetal, Germany

www.SMA.de

SMA Serviceline

Inverters: +49 561 9522 1499

Communication: +49 561 9522 2499

Fax: +49 561 9522 4699

E-Mail: Serviceline@SMA.de

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- Operating the product under incorrect safety or protection conditions
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- The product malfunctions due to operating attached or neighboring devices beyond statutory limit values
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SMA Solar Technology AG

Sonnenallee 1

34266 Niestetal

Germany

Tel. +49 561 9522-0

Fax +49 561 9522-100

www.SMA.de

E-Mail: info@SMA.de

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